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JLTV EMD Industry Day

26 April 2010

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TD Phase Industry Prototypes

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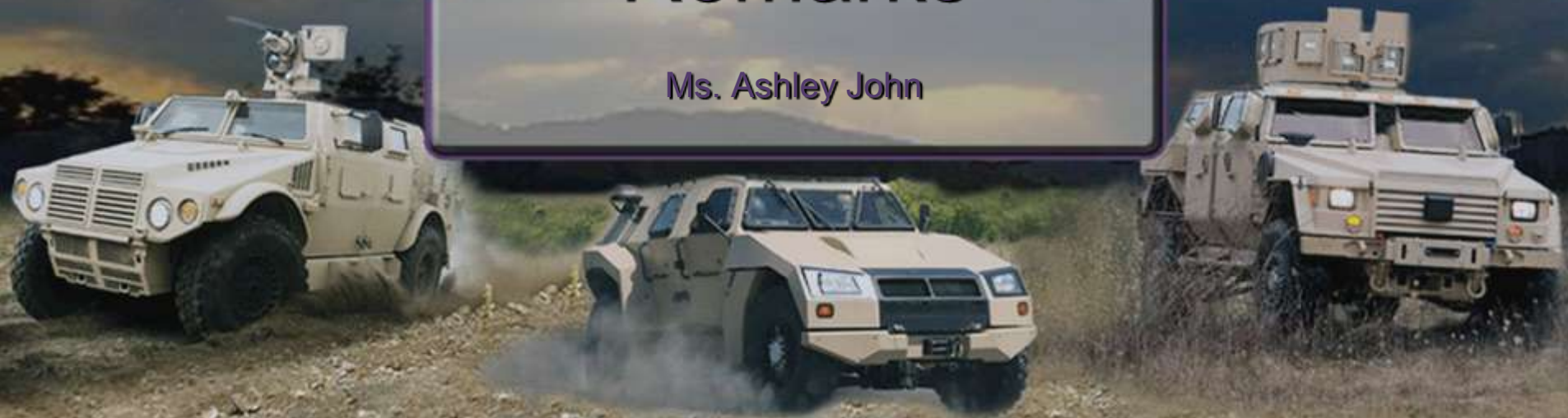
EMD Industry Day Agenda

- **0700 – 0800** Registration
- **0800 – 0810** Admin Remarks Ashley John, PEO CS & CSS
- **0810 – 0830** PEO Remarks Mr. Kevin Fahey / Mr. Dan Pierson
- **0830 – 0845** Background COL John (Steve) Myers , PM, JCSS
- **0845 – 0920** Requirements Chris Yunker / Fred Wehrli JLTV Cmbt Dev
- **0920 – 0930** Break
- **0930 – 1000** EMD Overview LTC Petermann / LtCol Garza
- **1000 – 1030** EMD Acquisition Strategy Sandy Pollum / Rick Mellenkamp, Acq
- **1030 – 1050** EMD Contract Requirements Doreen Costa
- **1050 – 1115** Foreign Disclosure Larry Klann
- **1115 – 1145** EMD Cost Reporting Sandy Weber / Sean Crofton
- **1145 – 1230** Lunch
- **1230 – 1330** EMD Purchase Description / Scope of Work Brett Johnson / Scott Rideout
Chris Brouwer/Chuck Trude
- **1330 – 1420** Science and Technology (TARDEC) Gary Schultz
- **1420 – 1430** Break
- **1430 – 1515** EMD Test and Evaluation Requirements
Product Assurance John Wozniak / Erin Thompson
- **1515 – 1530** Closing Remarks LtCol Garza



Admin Remarks

Ms. Ashley John



TD Phase Industry Prototypes



JLTV EMD Industry Day Ground Rules



Ground Rules:

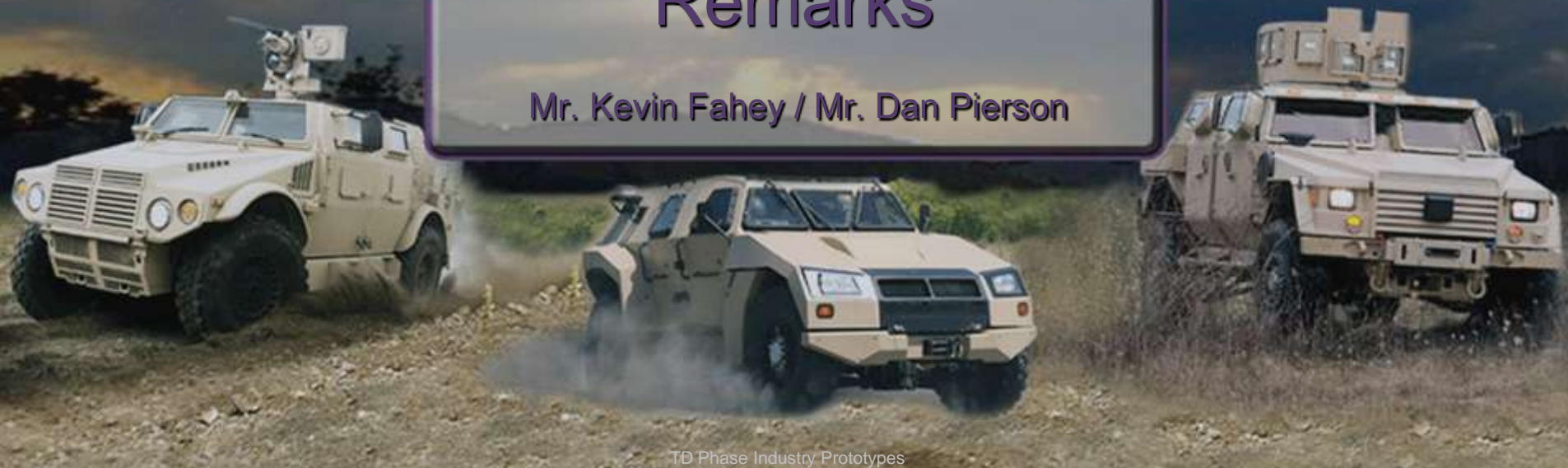
- Program Requirements, Acquisition Strategies, and Program Funding information remain pre-decisional
- Requirements are subject to future updates.
- Request for Proposal, once released, will take precedence over Industry Day information and any Draft Information on EMD Website.
- No verbal question and answer today
 - All Q&A must be submitted in writing, and will be posted to JLTV EMD Procurement website.

http://contracting.tacom.army.mil/majorsys/jltv_emd/jltv_emd.htm



PEO CS&CSS PEO LS Remarks

Mr. Kevin Fahey / Mr. Dan Pierson



TD Phase Industry Prototypes



Project Manager Joint Combat Support Systems

Develop and Acquire Joint Combat Support Systems for Expeditionary Forces

The background of the slide features a silhouette of a soldier in the foreground, holding a rifle and looking through a scope. Behind the soldier is a map of the world, with concentric circles radiating from the center, suggesting a global reach or expeditionary focus. The map is in shades of purple and white.

JLTV Background

COL John (Steve) Myers,
PM JCSS



Joint Combat Support Systems ~ *Project Management Office*



MISSION

Develop and Acquire Joint Combat Support Systems for Expeditionary Forces

VISION

Support the Joint Warfighters across the spectrum of conflict

Project Manager

COL John S. Myers

Deputy PM Acquisition: Mr. Dennis Mazurek

Deputy PM Technology: Mr. David Dopp

PRODUCT MANAGERS

- Sets, Kits, Outfits and Tools
 - **LTC Brian Tachias (USAR)**
 - **LTC Eric Rannon (25 June 2010)**
- Joint Light Tactical Vehicles
 - **LTC Wolfgang Petermann (USA)**
 - **Mr Mark McCoy (10 June 2010)**
 - **LtCol Ruben Garza (USMC)**
 - **LtCol Casey C. Travers (July 2010)**

PRODUCT DIRECTORS

- Test, Measurement & Diagnostics Equipment
 - **Mr. George Mitchell**
- Horizontal Technology Integration
 - **Mr. Fred Williams**



Product Manager - Sets, Kits, Outfits and Tools (PM SKOT)

<http://pmskot.army.mil>



Standard
Automotive Tool
Set (SATS)



SATS Field
Maintenance
Module 3 (FMM3)



Shop Equipment Contact
Maintenance (SECM)



Forward Repair
System (FRS)



Explosive Ordnance
Disposal (EOD)



General Mechanics
Tool Kit (GMTK)

Individual Aircraft
Armament Repair Tool Set
(IAARTS)



Small Arms Shop Sets
(SASS)

Warranty &
Replacement
Website



Shop Equipment
Welding (SEW)



Containerized Divers
Recompression Chamber
(CDRC)



Hydraulic Systems
Test & Repair Unit
(HSTRU)

Tool Stores in
Iraq & Afghanistan

Product Director - Test, Measurement and Diagnostic Equipment (PD TMDE)

<http://pdtmde.redstone.army.mil/>
General Purpose Electronic Test Equipment (GPETE)



**SIGNAL GENERATOR
SG-1364/U**



**RADAR TEST SET
TS-4530A/UPM**



Actual photo not yet available

**SIGNAL GENERATOR
SG-1366/U**



Actual photo not yet available

**TELECOMMUNICATION
SYSTEM TEST SET
TS-4544/U**

At-Platform Automatic Test Systems (APATS)

Maintenance Support Device- Version 3 (MSD- V3)
AN/PSM 95



Type 1

**Aviation Support
Screen Size: 10.4"**



Type 2

**Ground Support
Screen Size: 14.1"**

Off-Platform Automatic Test Systems (OPATS)



**NEXT GENERATION AUTOMATIC TEST SYSTEM (NGATS)
AN/ TSM-191**



Horizontal Technology Integration (PD HTI)

Expedited Modernization Initiative Procedure (EMIP) Component Technology Demonstrations

<http://peocscss.tacom.army.mil/EMIP/home.html>

**MARKET RESEARCH –
NOT SOURCE SELECTION**



- **Total # of TAls submitted to date: 622**
- **Total # of Demos to date: 228**
 - 19 Demos conducted at Ft. Eustis
 - 70 Demos conducted at SANGB
 - 111 Demos conducted at TACOM, Warren
 - 97 Demos conducted at Yuma

**Next EMIP Demonstration:
26 July – 29 July
Location: SANGB
(Tentative)**



JLTV - Robust & Low Risk TD Phase

- JLTV has taken positive steps to ensure that we reduce technical risk, validate designs, validate cost estimates, evaluation manufacturing processes, and refine requirements during the TD phase
 - JLTV capitalized on 5 years of work in order to achieve low risk
 - Army's Future Tactical Truck Systems (FTTS) Advanced Concept Technology Demonstration (ACTD)
 - USMC's Combat Tactical Vehicle (CTV) Technology Demonstrator
 - Platform Systems Demonstration (PSD)
 - We continue to leverage and learn from the S&T Community (TARDEC & ONR)
 - Eliminated problematic requirements from PD
 - Included additional testing during the TD phase
 - Scheduled Knowledge Point (KP) reviews
 - Prioritized and created requirements tiers to make the technology trade-off process more user friendly
 - Chose vehicles across the family to ensure we test and demonstrate the achievability of requirements, commonality of components, technology maturity, integration & manufacturing capabilities
 - Entered into discussions with International participation
 - Risk management



The story thus far...

Mission Statement:

The JLTV is a joint service and international program which consists of a family of vehicles with companion trailers, capable of performing multiple mission roles that will be designed to provide protected, sustained, networked mobility for personnel and payloads across the full range of military operations (traditional to irregular).

How the Cougar 4x4 Mine Resistant Ambush Protected (MRAP) vehicle compares to the up-armored Humvee M1114:



MRAP		Humvee	
108 inches	Width	91 inches	
104 inches	Height	75 inches	
233 inches	Length	196.5 inches	
38,000 lbs.	Maximum weight	12,100 lbs.	
5-10	Crew	4	
330 hp	Engine	190 hp	
65 mph	Maximum speed	78 mph	
5,000 lbs.	Payload capacity	2,300 lbs.	
600 miles	Range	275 miles	



Army's Future
Tactical Truck
Systems (FTTS)
Advanced
Concept
Technology
Demonstration
(ACTD)



Platform
Systems
Demonstration
(PSD)



USMC's Combat
Tactical Vehicle
(CTV)
Technology
Demonstrator





Strategic Focus

Requirements:

- Transportability
- Blast Protection
- Maneuverability = Mobility
- Sustainability – Availability and ease of maintenance
- Reliability
- Fuel Efficiency
- Net Ready
- Payload
- Affordability
- Commonality

JLTV Attributes:

- CH47/CH53/C130 (air)
MPF / Amphib Compatible (sea)
- Scalable to meet threat using A-/B-kit approach
- With B-kit armor & payload JLTV achieves HMMWV off-road mobility
- 95% A_o (Projected) / Avg time to repair = 0.5 hrs; Max time to repair = 2.5 hrs
- Cat B= 4,500 / Cat A & C= 6,170 MMBOMF
- JLTV w/ B-Kit & payload ~20% better than HMMWV w/ payload only
- Integrated Net-Ready Vehicle Architecture with On-board and Exportable Power
HMMWV = 2500# / JLTV = 3500 – 5100#
- Base vehicle cost ~\$305-340k (TD est)
- 90%+ within payload category; 70%+ across payload categories



JLTV Requirements

Chris Yunker / Fred Wehrli



TD Phase Industry Prototypes



JLTV Requirements Key Messages



- **JLTV remains the central element of Army & USMC's light tactical wheeled vehicle modernization strategy.**
- **Provides the basis to put greater capabilities on the battlefield in an evolutionary program.**
 - Initial capabilities are described which informed the PD
 - Capabilities not ready will be deferred until mature
 - Size of buy depends on value of the vehicle to the warfighter.
- **We are still learning from TD Phase:**
 - JLTV Rotary Wing transportability and light tactical mobility remain the signature system boundaries
 - JLTV has to be affordable to field – Services must be able to afford initial procurement
 - Life cycle cost consideration: Calculating O&S cost accounting for demonstrated RAM, will be part of our calculation of cost savings
- **We will continue to incrementally update the user requirements; integrating test results, analysis results, and other external factors, during TD Phase through a series of Requirement IPT (Cbt Dev) led Knowledge Points (KP). (Seven KP total, KP3 occurred in January 2010)**



CONOPS Deploy & Employ

- **Deploy**

- **Strategic:** fits aboard same MPF, JHSV & Amphib spaces as HMMWV
- **Operational:** Rotary Wing (CH-47F / CH-53) transportability; C-130 transport; LCAC and Roll On/Roll Off (RO/RO) transport.

- **Employment**

- **Protection:** Provides maximum scalable, protected light mobility for movement of small teams.
- **Force Application:** Maneuver Platform for organic infantry and SOF weapons and combat support teams to assault position with universal interfaces for crew served weapons
- **Versatile:** JLTV MRVs account for HMMWV CS & CSS missions in the MAGTF; Army BCT and Army Functional BDEs: towed indirect fire, utility cargo carrying/prime mover, casualty evac, shelter carrying, includes companion trailer
- **Tactically Mobile:** same soft soil mobility as HMMWV; improved off-road and on-road performance in dry conditions; accounts for urban terrain & lessons learned in the OIF/OEF mobility experience



CONOPS: Recover & Sustain



- **Recovery, Resiliency, & Safety:**
 - HMMWV-level soft soil tactical mobility: fewer mires
 - Self Recovery (Winch); Like Vehicle Recovery; existing wreckers
 - Resilient to rollovers; Ballistic tolerance: escapes ambush zone; incorporates crew fire protection & other basic safety improvements
- **Sustainability / Maintenance & Support:**
 - Fits into existing maintenance & support systems
 - Improvement over HMMWV reliability: reduces frequency of repair
 - Modular approach to repair and replace: improves speed of repair
 - Component commonality
 - Fuel efficiency compatible with or greater than HMMWV
 - Power generation and energy storage to meet current & future unit-level needs
 - Modular approach to technology: allows for upgrades / S&T; space and power accounts for niche requirements and future advances



Key Lessons from TD Phase:

- **Weight:**
 - Continues to be a central challenge to be managed
 - RW lift and Sea lift remain key boundary conditions
 - When EFP kits mounted, a viable capability must remain
- **Cost:** TD vehicles too expensive; option packages and requirements restraint needed (*on part of both Gov't & Ind*)
- **Changes in Environment:** Changing service strategies no longer support a complete HMMWV:JLTV transition; there will be a mixed fleet for the foreseeable future
- **Adjusting the user requirements:** Knowledge Points 1-3 acknowledge these & adjusted the user requirements as reflected in the following charts

User Requirements



Requirements		Analysis Rationale	Status
IED Under-Body	Classified	Based on best possible blast and fragmentation protection achievable in RW transportability boundary condition by WSTS Round I, and balanced against NGIC UB threat analyses.	Change. Common across FOV.
Small Arms	Classified	Based on upon NGIC most dangerous (95%) threat in small arms category. Equivalent to UAH/MRAP/MATV	No Change
IED Side	Classified	Based upon research conducted in coordination with NGIC and MCIA on appropriate levels of protection now proving effective in the field. Equivalent to UAH/MRAP/MATV	No Change
EFP	Classified	Based on 1) FK6 JUONS and 2) TARDEC assessment of technical feasibility for weight bearing capabilities of JLTV Tech Demo & JLTV Whole System Trade Studies. Equiv. to MATV	No Change
Mobility	Soft Soil (25/27 RCI); & Power/ Weight Ratio (30% sand slope)	Returns HMMWV off-road mobility to It tactical fleet; JLTV Mobility KPP Study results w/ 'best of gov't & industry' mobility SME	Change to testable values stated in soft-soil and tractive metrics.
Survivability	Integrated structure with crush resistant roof to support 150% of GVW.	Levied NHTSA-community analyses on rollovers & accidents for vehicle structural characteristics necessary to improve soldiers & Marines' chances of surviving accidents & improve veh. resilience	No Change



User Requirements

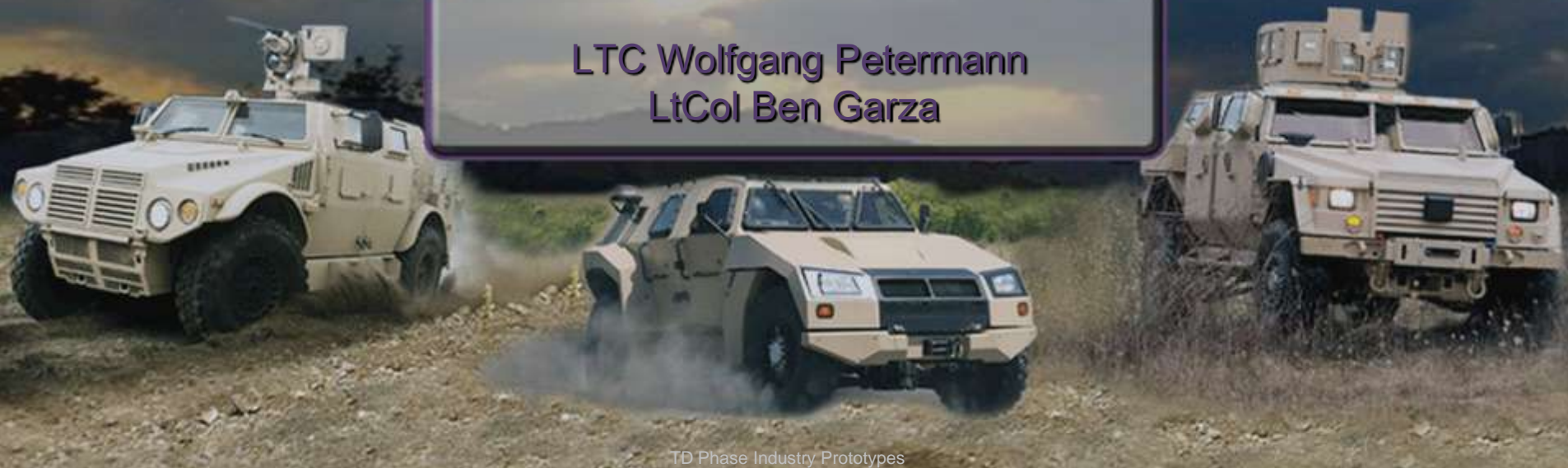


Requirements		Analysis Rationale	Status
Transportability	CH-53E, CH-47F, MPF Height Restricted Decks	Based upon USMC STOM Doctrine and Army AASLT Doctrine, as well USN shipping existing capabilities.	Changed, CH-47f KPP TSC results: KPP = Assault Echelon; others tier2
Payload	GPA/WPN/TOW/Rec on: 3,500; C Utility/Shelter/Ambu: 5,100	Determined based upon predecessor capabilities and bottom up analyses of payload requirements.	Convergence of 4 passenger vehicles to common payload
Sustainability	95% A _o ; A _m xx% (TBD)	SES level agreement between the services on availability.	Sustainability TSC: Due at KP5
Net Ready	Full Net-Ready Integrated Solution	Mandatory KPP	No Change
Reliability	Cat B= 4,500 / Cat A & C= 6,170 MMBOMF	SES level agreement between the services on reliability.	No Change, but heading toward common Reliability
Fuel Efficiency	60 ton-mpg	Determined using TARDEC HVEA Analyses of M1151 fuel efficiency testing at APG; 2007 AMSAA EoA fuel analyses.	Achieving Increment II (T), Established Fuel Efficiency Analysis TSC; Due at KP5
Owner. Cost	\$14.293B combined USA & USMC Incr I ownership cost	Mandatory KSA. 2007 evaluation of Alternatives (EoA) Results	Addressed by on-going WSTS Round IV TSC results. Seeing significant downward trend.



JLTV EMD Overview

LTC Wolfgang Petermann
LtCol Ben Garza



TD Phase Industry Prototypes

Purpose

MISSION:

*Jointly develop, produce, field and sustain
safe, reliable, suitable and effective family of
Joint Light Tactical Vehicles*

VISION:

*JLTV – Providing our Joint Warfighter
with the very best in light tactical vehicle
payload, protection and performance*



Industry Day



- **Purpose:**

- Inform industry of Government intent for JLTV development
 - Initial look at requirements
 - Initial look at draft acquisition plans
 - Near term path forward
- Obtain feedback from industry

All program information is Pre-Decisional



Program Tenets

- **JLTV FoV emphasizes:**

- Adaptability
- Interoperability
- Enhances expeditionary responsiveness to the Joint Warfighter
- Increase maneuver capability
- Provides outstanding scalable protection at a much lower weight
- Maritime Prepositioning Force (MPF): Helo & Sealift transportable
- Achieves unprecedented levels of commonality
- Intent is no service unique requirements

Program Tenets = Lower Life-Cycle Costs

Who's Who in JLTv



Program Governance

- OSD / ARMY / NAVY
- Program Certification & Milestone Decisions

Material Development

- PEO CS & CSS / PM JCSS / PM JLTv
- Program Management
- Milestone Documentation Development

Requirements Development

- Marine Corps Combat Development Command (MCCDC)
- Sustainment Center of Excellence (SCoE)

EMD Phase Industry

- TBD
- TBD

Science & Technology

- TARDEC / ONR
- Technology Development
- Trade Studies to Support Requirements Development

Potential EMD Phase International Participants

- Countries: Australia



Family of Vehicles (FoV)

(EMD Phase)

PAYLOAD CATEGORY A

Payload: 3,500
Performance: Exceed HMMWV
Transport: 1x EAT* CH 47/53
1x IAT** C130

Sub-Configurations

General Purpose Mobility (Small Unit C2)

Heavy Guns Carrier
(Wpns Co, MP, Mounted
Patrol, Convoy Escort)

Close Combat Weapons/
TOW ITAS Carrier

Recon (4 Seat) (Armored
Scout LRAS)

C2OTM (Maneuver
Brigade)

TARDEC
Concept Example



PAYLOAD CATEGORY B

Payload: 4500 lbs
Performance: Exceed HMMWV
Transport: 1x EAT* CH 47/53
1x IAT** C130

Sub-Configurations

BCOTM (BDE & Above)

Infantry Carrier, Fire Team
(6 Seat)

Recon (6 Seat) (Armored
Scout, COLT, FIST)

ONR & TARDEC
Concept
Examples



Shaded sub-configurations
are only designed in EMD

PAYLOAD CATEGORY C

Payload: 5,100 lbs
Performance: Exceed HMMWV
Transport: 1x EAT* CH 47/53
1x IAT** C130

Sub-Configurations

Shelter Carrier / Prime Mover / Utility (2 Seat)

Ambulance (3 seat + 2 Litter)

Ambulance (3 seat + 4 Litter)

ONR & TARDEC
Concept Examples



* EAT: External Air Transport
** IAT: Internal Air Transport



Trailers for each payload category to have equivalent
payload and mobility to support prime movers.





EMD Phase

Approach to Schedule, Performance & Cost

- **Schedule**

- Each contractor will be required to submit an Integrated Master Schedule (IMS)
- No additional time will be allowed to successfully complete the contract requirements
- Schedule performance will be monitored by CDRL submittals

- **Performance**

- Compliance matrices, Technical Performance Metrics (TPMs), testing and analyses will be used to assess the capabilities of the proposed system solution
- An integrated teaming approach will be used to achieve best possible system solution

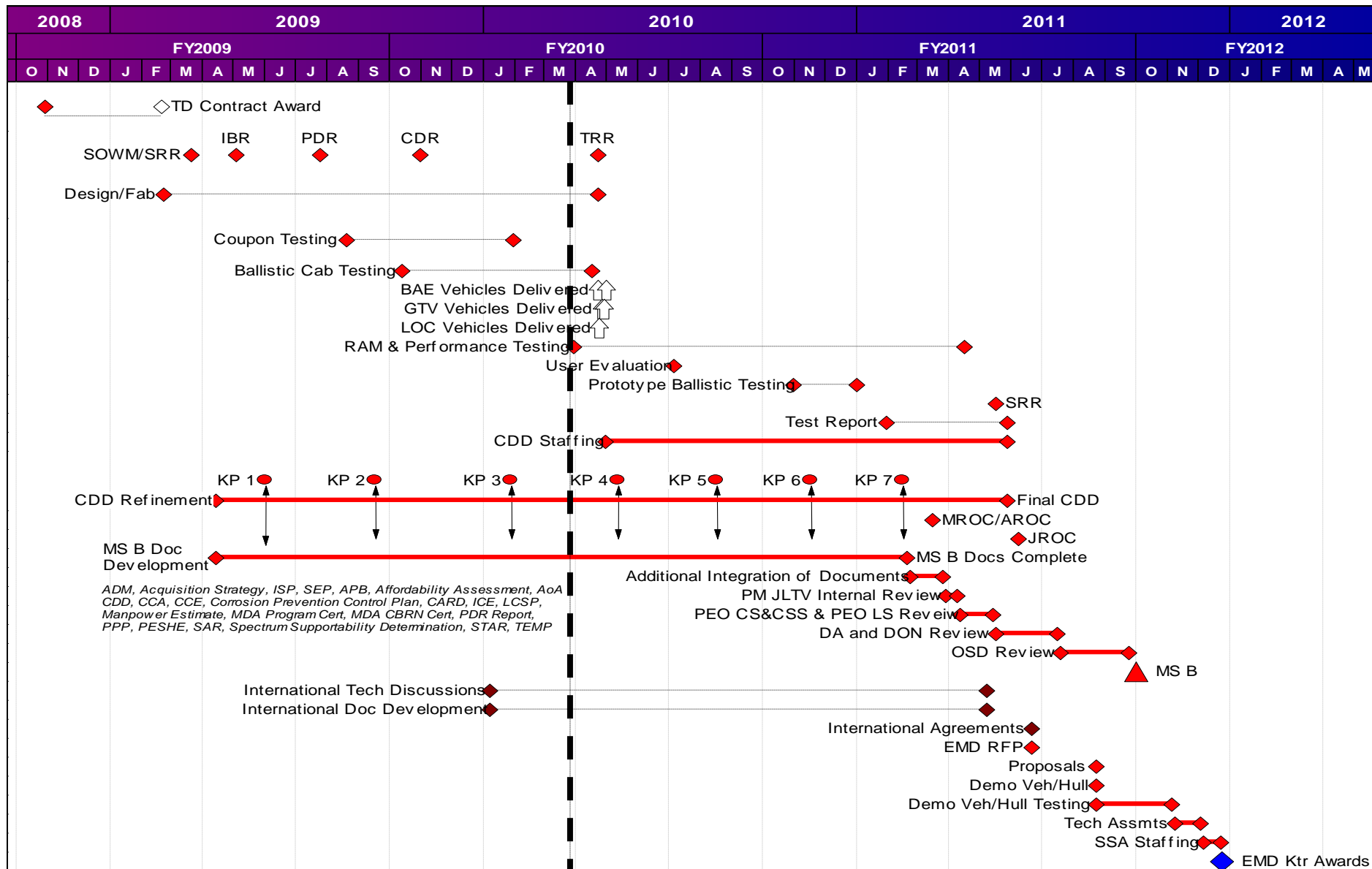
- **Cost**

- Each contractor will receive their allocated contract award
- Additional funding will not be provided
- Cost performance will be monitored by CDRL submittals

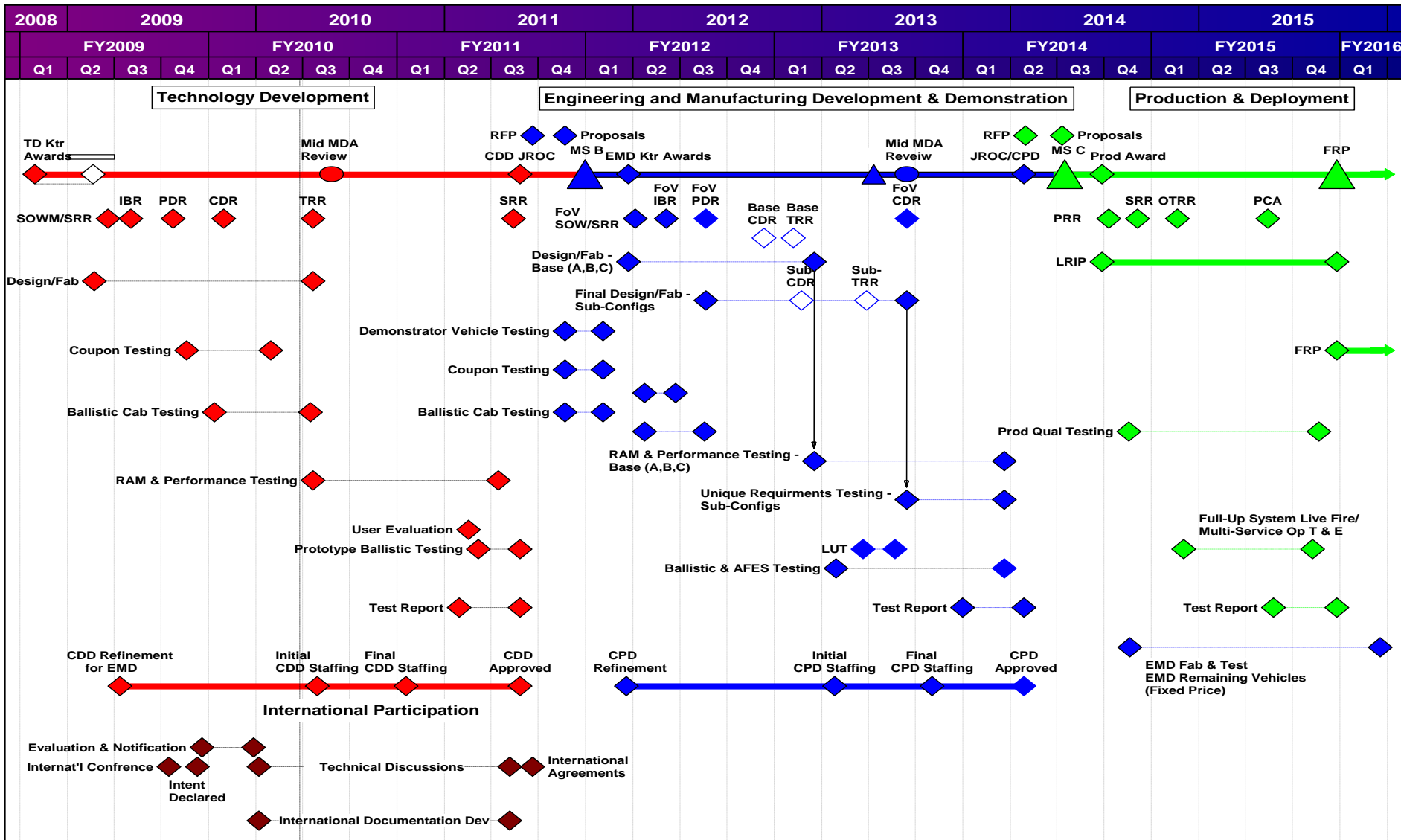
JLTV Technology Assessment

KPP / KSA	Allocated Technology Category	Technology Readiness Level			Expected Pacing Metric	Basis/ Rationale for Assessment	Integration Status
		Estimated at MS A	Current	At MS B			
Mobility	Suspension-Steering Power Package-Drive Train	7	6	7	Greater or equal to NRMM X-country performance	TD Contract CDR with Contractor built demonstrators	Current systems utilize multiple integration solutions but use mature components
	Electrical Power	7	7	7			
	HVAC	7	6	7			
Transportability	Direct Fire Armor	7	6	7	Rotary Wing transport MPF ship transport	TD Contract CDR with Contractor built demonstrators	Moving from coupon testing to full vehicle tests by the conclusion of this phase
	Underbody Armor	5	5	6			
	Adjustable Height Suspension	6	6	7			
Net-Ready	C4I Suite	7	7	7	Voice Comms, Data Comms, Computing Asset & Software	TD Contract CDR with Contractor built demonstrators	Each contractor is using a unique architecture to meet cross domain integration challenges
	Electrical Energy Storage	7	6	7			
Force Protection	Direct Fire Armor	7	6	7	Exceed UAH in all threat domains	TD Contract CDR with Contractor built demonstrators	Moving from coupon testing to full vehicle tests by the conclusion of this phase
	Underbody Armor	5	5	6			
Survivability	Hull-Frame	7	5	7	Crush Resistant Roof@150% GVW	TD Contract CDR with Contractor built demonstrators	Using user juries and M&S to ensure design
	Body-Cab	7	6	7			
Payload	Suspension	7	6	7	Varies by Payload Category – 3500 to 5100 lbs	TD Contract CDR with Contractor built demonstrators	Current systems utilize multiple integration and alternative trades to create a solution based on logical trades
	Hull-Frame	7	6	7			
Availability	All major systems / subsystems	--	--	--	Point Estimate based on TD Reliability test miles	TD Contract CDR with Contractor built demonstrators	

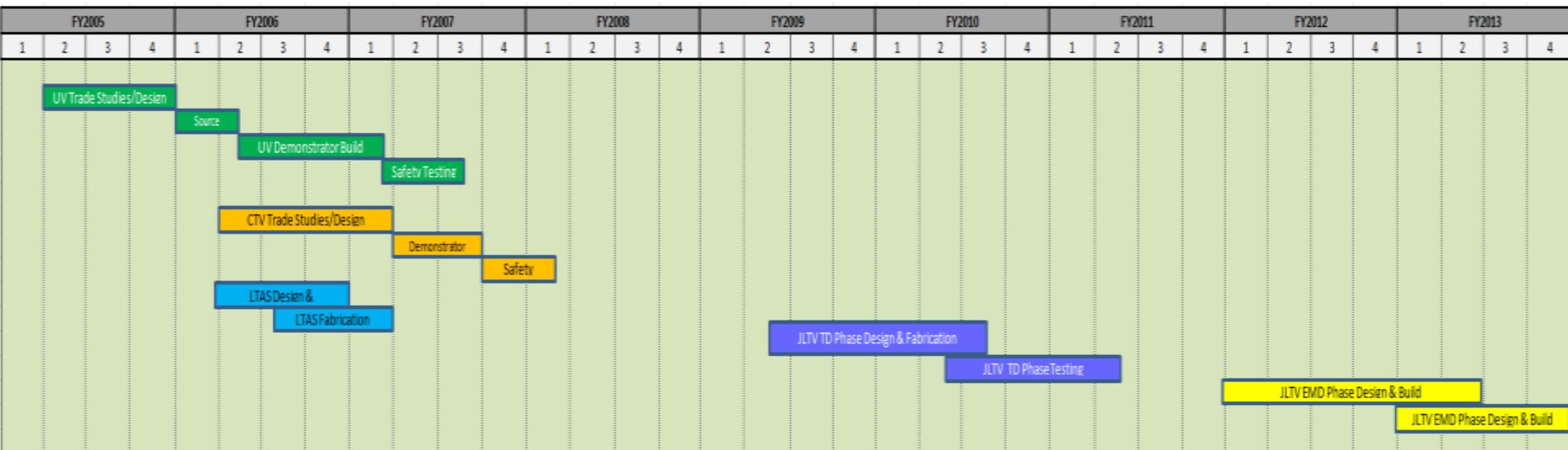
JLTV Critical Path to EMD Award (Notional)



JLTV Strategic Planning Program Schedule (Notional 24-Month Program)



Schedule Comparison (Notional)



UV Trade Studies/Design 9 Months
UV Build (2 System Integrators) 9 & 10 Months

CTV Trade Studies 12 Months
CTV Build 6 Months

LTAS* Design 9 Months
LTAS Fabrication 7.5 Months
5 Mo overlap for long lead items

JLTV Design & Build 15 Months
JLTV TD Phase Testing 12 Months

JLTV *PLANNED* EMD Build 18 Months
JLTV *PLANNED* EMD Testing 12 Months



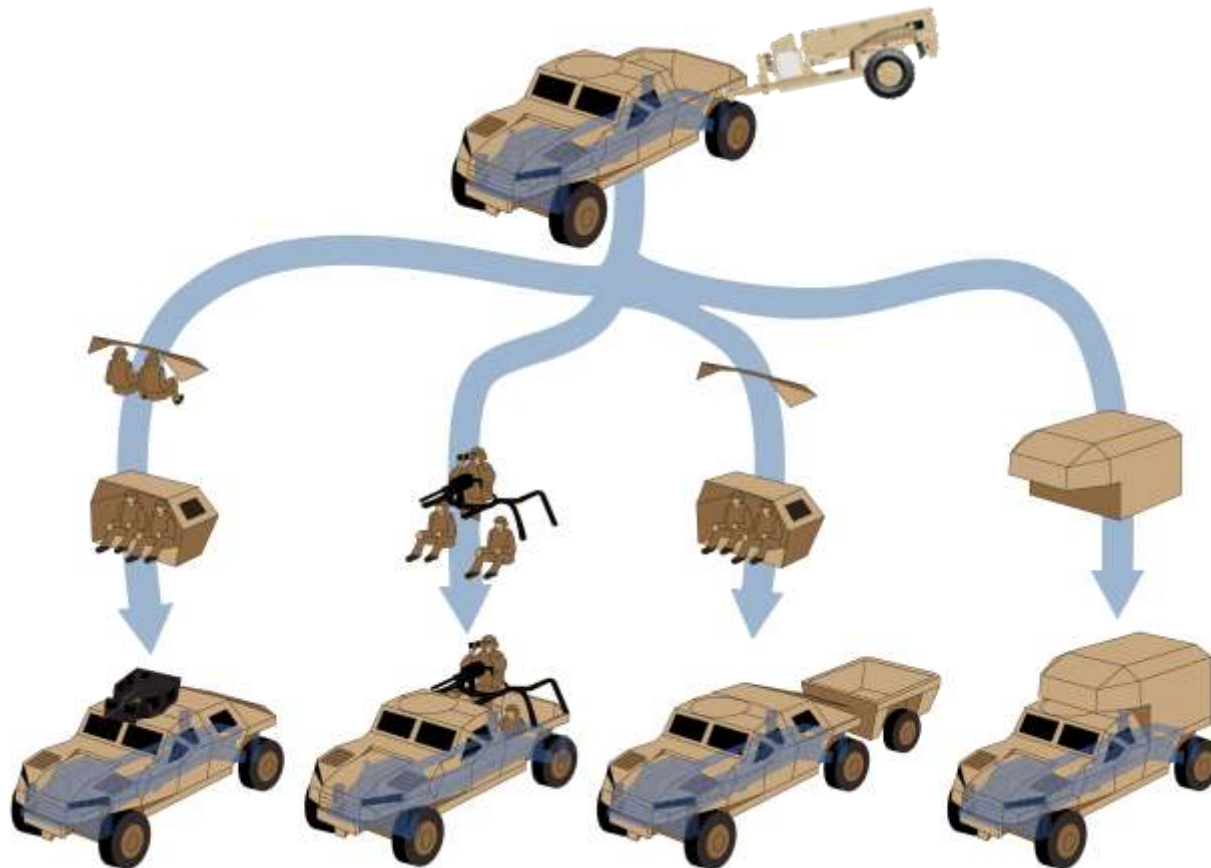
* Long Term Armor Strategy (LTAS)



Concept Drawings

Commonality within FoV w/ Trailers

JLTV Cat A, GP



JLTV to be designed for commonality beyond major components, to include repair parts, tools, training, system design, maintenance procedures and sources of supply



Life-Cycle Acquisition Approach

- **Engineering, Manufacturing & Development Phase (Notional)**

- An Evolutionary Acquisition (EA) approach will be employed with non-concurrent build schedules based on program priorities.
- A full and open competition for Engineering, Manufacturing and Development (EMD)
 - Competitive source selection of two offerors.
 - Selection approach will evaluation written proposal, demonstrator vehicle, ballistic hull(s) and coupons.
 - Integration of mature technologies of Technology Readiness Level (TRL) 6 or greater.
- Design, fabricate, & fully test “base” Category A, B, and C platforms
- Design, fabricate, and test for highest priority sub-configurations
- Design the balance of the sub-configurations to CDR level with an option for fabrication and test executed at MS C down select
- Single Milestone B and multiple MS C decision points that will address the program approach for the non-concurrent build schedules of each of the JLTV payload category sub-configurations
- Future build schedules will address sub-configurations of remaining variants in Payload Categories A, B, and C.
- Contract type is TBD
- Potential for Low-Rate Initial Production(LRIP) for select sub-configurations

- **Production Phase (Notional)**

- Restricted competition (EMD Contractors only), down select to one contractor
- Focused incentives (Reliability Growth, Maintenance Man-hour Reduction, Fuel Efficiency, Life Cycle O&S Reduction, Accelerated Deliveries)
- RFP to include requirement for TDP (Re-competition, Spares, Engineering Efforts, Etc.)
 - TDP CLIN executed post Production Verification Test
 - Government rights to the TDP will allow future competition
- Fixed Priced type contract for LRIP and FRP



Demonstrator Vehicles

- **Based on TD results to date, expecting a mature design and technology going into EMD phase. Offerors must demonstrate EMD vehicle maturity**
 - 24 months total EMD Phase, of which 12 months will be for test
 - 36-53 vehicles per vendor; Includes vehicles for Log demo, Aus RHD, T&E Test events (Performance/RAM testing)
 - Vehicles must be able to demonstrate reliability in a realistic operational environment.
- **A Demonstrator Vehicle and hull(s) (for ballistic testing) will be required with each contractor proposal submission**
 - Non Conforming Proposal Rule: If interested parties have no demonstrator vehicle then they will not be allowed to compete for EMD Phase contract awards.
 - The proposed hulls must be identical to the hull on the Demonstrator Vehicles
 - Assessment of the Demonstrator Vehicle will be focused on key performance areas which will be identified
- **Demonstrator Vehicle serves as the base element for the family of vehicle design**
- **Demonstrator Vehicle will be provided at no cost to the government with proposal submission**
 - Demonstrators to be returned to the Offerors at the completion of non destructive assessment testing
 - Government will purchase ballistic hulls for destructive testing and analysis



Data-Driven Decision Making



- **IMS**

- Schedule performance assessment will manage any necessary change control
- Schedule risk assessment will statistically assess the likelihood of contract completion date

- **EVMS**

- EVMS performance assessments will provide cost and schedule performance trends necessary for assessing progress and change

- **CSDR**

- Used to determine affordability of future program phases

- **Testing & Analysis**

- Used to assess demonstrated performance of Contractor's system solution and compliance with system specifications



Sharing Government Lessons Learned (Notional)



- **Specification updated based on lessons learned from Technology Development Phase**
- **Pre-proposal conference**
- **Industry Exchange via JLTV website**
- **TARDEC Technology Transition briefings**
- **Advanced Planning Brief to Industry**
- **RDECOM symposia & conferences**



JLTV Acquisition Strategy

Sandy Pollum / Rick Mellenkamp



TD Phase Industry Prototypes



Ground Rules and Assumptions

(Notional)



- Acquisition Plan and Acquisition Strategy are pre-decisional
- Design FoV and build high priority with non-concurrent build schedules
 - Three base variants/configurations for A, B and C
 - High priority sub configurations for EMD
 - Remaining sub-configurations through CDR design for EMD with potential follow on build and test
- EMD Contract Type TBD
- Two contracts during EMD with single down select post MS C to LRIP
- TDP included as option
- EMD contract performance duration is 24 months
- Proposal submission shall include
 - Written proposal
 - Demonstrator vehicle
 - Ballistic hull(s)
 - Coupons
- Expecting international participation to continue
- Minimal changes between base category configuration requirements



JLTV Acquisition Approach

(Notional)



- An Evolutionary Acquisition (EA) approach will be employed with non-concurrent build schedules based on program priorities.
- A full and open competition for Engineering, Manufacturing and Development (EMD)
 - Competitive source selection of two offerors.
 - Selection approach will evaluate written proposal, demonstrator vehicle, ballistic hull(s) and coupons.
 - Integration of mature technologies of Technology Readiness Level (TRL) 6 or greater.
- Design, fabricate, & fully test “base” Category A, B, and C platforms
- Design, fabricate, and conduct limited testing for highest priority sub-configurations
- Design the balance of the sub-configurations to CDR level with options for fabrication and test.
- Projected duration from award to test completion is 24 months.
- Single Milestone B and multiple MS C decision points that will address the program approach for the non-concurrent build schedules of each of the JLTV payload category sub-configurations
- Vehicles will be designed with an open architecture to integrate future technologies
- Future build schedules will address sub configurations of remaining variants in Payload Categories A, B, and C
- Production & Development (PD) phase to be a downselect of EMD contractors
- Potential for Low-Rate Initial Production(LRIP) for select sub-configurations

EMD Phase Strategy

(Notional)

- The EMD phase will focus on reducing program risk, ensuring operational supportability, designing for producibility, maximizing affordability, ensuring critical program information protection, and demonstrating system integration, interoperability, transportability, fuel efficiency, reliability, and utility.
- The Government anticipates full and open competition with award of two contracts for the EMD phase, lasting 24 months.
 - This period consists of 18 months of design and fabrication and 12 months of test, with a 6 month overlap.
- Contract type for the design of FoV and build variants in EMD Phase is TBD.
- Exercise EMD Option for the build of the remaining variants after PD phase down select. Fallback is to award build and test of CDR level designs with production award.
- Exercise EMD Option for the Technical Data Package after Production phase down select.
- Potential for Low-Rate Initial Production(LRIP) for select sub-configurations



JLTV EMD – Potential Selection Factors (Notional)



- Areas of consideration for assessment of proposals:
 - Technical Approach
 - Program Management
 - Logistics
 - Manufacturing/Production Capabilities
 - Cost
 - Past Performance
 - Small Business
- The performance of the demonstrator vehicle, ballistic hull(s) and coupons for ballistic testing during source selection evaluation
 - The proposed hull(s) must reflect the hull on the Demonstrator Vehicle and meet force protection requirements
 - Assessment of the Demonstrator Vehicle will be on, fuel efficiency, mobility requirements, transportability, power, volume/human factors, and maintainability
 - Coupons will only be required for the selection phase from those vendors without Government approved recipes



EMD FoV – Stages

- Stage 1
 - Design all FoV sub-configurations through CDR (includes base variants in various mission roles or sub-configurations)
 - Fabrication and full test of the three base variants (A, B, and C (with the specific sub-configurations TBD)) prior to MS C.
- Stage 2
 - Fabrication of additional high priority sub-configurations as well as limited testing.
 - Performance Testing will be conducted to validate mission role compliance prior to MS C.
 - No RAM Testing required as this is a repackaging of Base variants internal configuration to support mission roles as defined in the CDD.
- Stage 3
 - Fabrication and limited testing of sub-configurations originally only taken through CDR. This effort will occur after the initial MS C.



Industry Engagement

- Initial release of draft scope of work June 2010
- Incremental updates of purchase description and scope of work thereafter
- Plan for Industry sessions

We want industry feedback on contract requirements



JLTV Acquisition Summary



- A full and open competition for Engineering, Manufacturing and Development (EMD)
 - Competitive source selection of two offerors.
 - Selection approach will evaluation written proposal, demonstrator vehicle, ballistic hull(s) and coupons.
- EMD phase contract type for the design of FoV and build variants is TBD.
- An option will be awarded for the build of the remaining variants after Production and Deployment (PD) phase down select.
- Soliciting FPIF type contract (*Industry comments welcome*)
- EMD Phase - 3 Stages

Please provide your recommendations for contract types in EMD Phase



JLTV

Contract Requirements

Doreen Costa



TD Phase Industry Prototypes



JLTV EMD Request For Proposal

(Notional)



- The Government will issue a Request For Proposals (RFP) for the Joint Light Tactical Vehicle EMD Phase at a later date.
- The RFP will contain the Government's official requirements for JLTV EMD Phase.
- The RFP, once released, will take precedence over information presented during Industry Day, as well as any draft information on EMD Website.
- EMD Vehicle Performance Requirements will be governed by the Purchase Description (PD), which will be incorporated into RFP and contract.
- Draft sections of SOW (including Draft PD) will be posted on JLTV EMD Procurement website.



JLTV EMD Target Dates

(Notional)



The following information is draft only and subject to change:

- Planned RFP Release: 3rd Quarter FY2011
- Estimated Proposals Due: 60 days from RFP Release
- Estimated Date of Award: End of 1st Quarter FY2012
- **Pre-proposal Conference Anticipated to be Held Shortly After Release of RFP.**



JLTV EMD Procurement Website

(Notional)



JLTV EMD Procurement Website

http://contracting.tacom.army.mil/majorsys/jltv_emd/jltv_emd.htm

- Website will be continually updated with information regarding JLTV EMD Phase and EMD RFP information such as:

- Draft Purchase Description & Draft Sections of RFP
- Q&A
- List of Interested Subcontractors

*It is the Responsibility of Industry to Check Website Regularly!

- Q&A on UNCLASSIFIED website content will be handled through e-mail submissions.
- UNCLASSIFIED Q&A will be posted to the website.
- Separate instructions for CLASSIFIED and FOUO Q&A



JLTV EMD RFP & AQ Strategy Overview

(Notional)



- EMD contracts will be awarded under Full and Open Competition
- RFP Submissions: Intent is to require offeror's to submit written proposal, demonstrator vehicle, ballistic hull(s) and coupons.
- Contract Type is TBD
 - Soliciting feedback on contract type, including Fixed Price Incentive Fee (FPIF), send to: **DAMI_JLTV-RFP@conus.army.mil**
- Planned Award of Two EMD Contracts
- JLTV Production contract is planned to be awarded following limited competition between two EMD contractors



JLTV EMD International Program Plan (Notional)



The JLTV EMD International Program Plan impacts contract requirements:

- Ongoing Government discussions to develop US / Australia collaborative agreement for EMD
- Scope of Work expected to include:
 - Design, fabrication & test of Right Hand Operation (RHO) vehicles
 - RHO testing in US & Australia
 - SOW & CDRL's to address Australian acquisition requirements
 - Australian participation in all contractor meetings & events
- Export agreements required to enable Australian & US contractor interaction



Export Guidance to Potential EMD Offerors (Notional)



- Need to ensure respective Technical Assistance Agreements and/or Export Licenses are submitted in a timely manner to avoid program disruptions
- Must adhere to the International Traffic in Arms Regulation (ITAR) rules and regulations
- Questions regarding compliance with the Department of State's ITAR can be addressed to:

-DDTCResponseTeam@state.gov

-Telephone: (202) 663-1282



JLTV EMD Procurement E-mail (Notional)



Please send all questions, feedback,
and comments to:

DAMI_JLTV-RFP@conus.army.mil



FOREIGN DISCLOSURE & U.S. Classified/Export Controlled Information

Larry Klann



TD Phase Industry Prototypes



Foreign Requests for Classified/Export Controlled Information



- Foreign Competitors will request thru their embassy in the US, and provide embassy POC, phone number and address for transmittal purposes
- Brief statement of capabilities that covers production, technology and security considerations
- Verification of requestor's ability to access and store U.S. Classified or Export Controlled Information will be thru normal US procedures and is required prior to providing any information



US Requests for Classified Information



- US Competitors will provide the following information:
 - Facility Security Officer
 - Phone Number
 - Classified Mailing Address and Cage Code
- Brief statement of capabilities which includes production, technology and security considerations
- JCSS Security will validate ability to access and store U.S. classified through Industrial Security Facilities Database
- If approved, information will be handled IAW DD Form 254, Contract Security Classification Specification, instructions.



US Requests for Export Controlled Information



- US Competitors will submit certification (DD Form 2345 or certification number) by Defense Logistics Agency's Joint Certification Program.
- Statement of capabilities regarding production and technology, and the phone number and mailing information for the registered data custodian.



JLTV Cost Reporting

Sandy Weber / Sean Crofton



TD Phase Industry Prototypes

Agenda

(Notional)

- **Contractor Average Unit Manufacturing Cost (CAUMC)**
- **Cost & Software Data Reporting (CSDR)**
- **Earned Value Management (EVM)**
 - Contract Performance Reports (CPRs)
 - Integrated Baseline Review (IBR)
 - Integrated Master Schedule (IMS)
 - Contract Funds Status Report (CFSR)
 - Obligations and Expenditures



Contractor Average Unit Manufacturing Cost (CAUMC)

Non Recurring Production - 2.01

System
1.0 Research, Development, Test and Evaluation
2.0 Procurement
3.0 Military Construction
4.0 Military Personnel
5.0 Operation and Sustainment
6.0 Army Working Capital Fund

2.0 Procurement
2.01 Non Recurring Production
2.02 Recurring Production
2.03 Engineering Changes
2.04 System Engineering/Program Management
2.05 System Test & Evaluation, Production
2.06 Training
2.07 Data
2.08 Support Equipment
2.09 Operation/Site Activation
2.10 Fielding
2.11 Training
2.12 War Reserve Ammunition/Missiles
2.13 Modifications
2.14 Other Procurement

Total Procurement Cost is the sum of all 2.0 elements

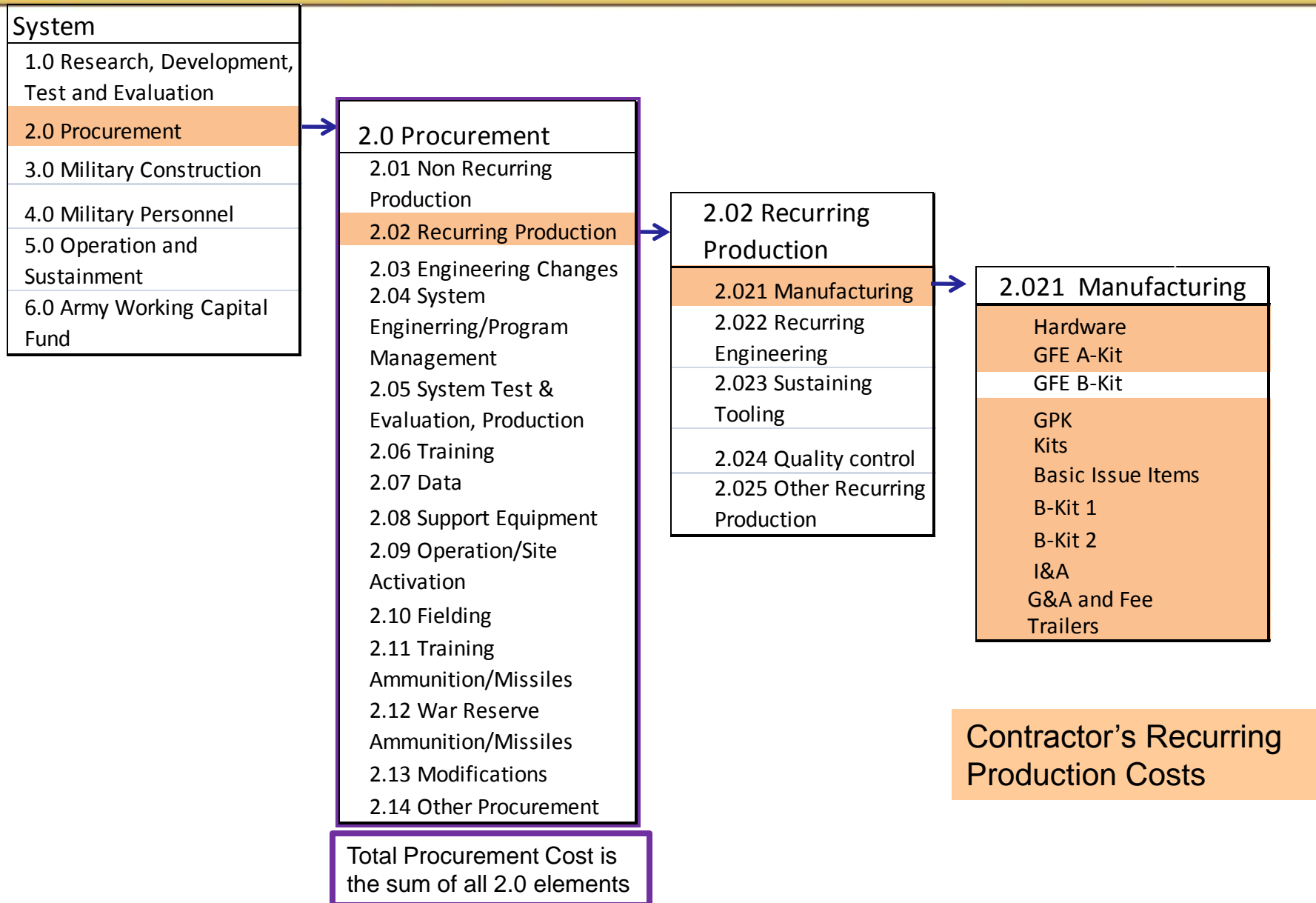
Reporting Structure

	NonRecurring Production					
	LRIP YR 1	LRIP YR 2	FRP YR 1	FRP YR2	FRP YR 3	FRP YR(N)
Tooling						
Fixtures						
Facility Expenses						
Other* (Detailed List)						
Total						

*Cost Elements as defined in the Army Cost Analysis Manual

LRIP = Low Rate Initial Production
FRP = Full Rate Production

Recurring Production – 2.02



Recurring Production (Manufacturing 2.021)

Reporting Structure

QUANTITIES	CAT A	CAT B	CAT C
	To be provided	To be provided	To be provided
Recurring	\$ -	\$ -	\$ -
Basic Vehicle to include the following	\$ -	\$ -	\$ -
Hull Structure/Frame	\$ -	\$ -	\$ -
Suspension/Steering	\$ -	\$ -	\$ -
Power Package/Drive Train	\$ -	\$ -	\$ -
Auxiliary Automotive	\$ -	\$ -	\$ -
Body/Cab	\$ -	\$ -	\$ -
Special Equipment	\$ -	\$ -	\$ -
Communications	\$ -	\$ -	\$ -
Software	\$ -	\$ -	\$ -
Vetronics	\$ -	\$ -	\$ -
Integration, Assembly, Test and Checkout	\$ -	\$ -	\$ -
Other	\$ -	\$ -	\$ -
GFE A-Kit	\$ -	\$ -	\$ -
GPK: Gunner's Protection Kit	\$ -	\$ -	\$ -
Kits:	\$ -	\$ -	\$ -
Arctic	\$ -	\$ -	\$ -
Fording	\$ -	\$ -	\$ -
Winch	\$ -	\$ -	\$ -
Other Kits	\$ -	\$ -	\$ -
BII: Basic Issue Items	\$ -	\$ -	\$ -
B-Kit 1: add-on armor package	\$ -	\$ -	\$ -
B-Kit 2: for higher class threats	\$ -	\$ -	\$ -
Trailers	\$ -	\$ -	\$ -
Contractor Overhead (i.e. G&A, Cost of Money, Fee)	\$ -	\$ -	\$ -
Total Recurring Unit Manufacturing Cost	\$ -	\$ -	\$ -

Maybe required
for sub-
configurations
(instead of
categories)

Weighted Average Base Vehicle Cost Over All Payloads	
Weighted Average Unit Cost Over All Payloads	

Cost and Software Data Reporting (CSDR)



History & Purpose of CSDRs within the DoD



- **History**

- Official cost reporting dates to 1960s
- Software reporting introduced in late 1990s
- OSD established Defense Cost & Resource Center (DCARC) office in late 1990s
- Today all ACAT 1C/1D programs fulfill CSDR requirements

- **Purpose**

- Cost data
 - A systematic and standardized process to collect and return cost data by MIL-HDBK-881A Work Breakdown Structure
- Software Data
 - Collect via Data Item Description (DID) at levels consistent with software estimating needs



Applications of CSDRs

- **Required on all ACAT IC & ID Program contracts greater than \$50M independent of contract type**
 - All subcontracts that exceed \$50M threshold
- **Subcontract requirements required on high-risk or high-technical-interest Subcontracts between \$20M-\$50M**



The Fundamentals of CSDR Requirements



There are three principal types of deliverables provided by industry to the government:

1. Contractor Cost Data Reports (CCDRs)
 - Provide standardized cost and hours information across programs
 - Provide recurring/non-recurring split by Work Breakdown Structure (WBS) Element
 - Delivered via financial management Data Item Description (DIDs)
2. Software Resources Data Reports (SRDRs)
 - Provide software information across programs
 - Provide size, effort, schedule, and other descriptive development data
 - Delivered via financial management Data Item Description (DIDs)
3. Contractor Work Breakdown Structure (CWBS) Dictionary
 - Provide comprehensive description of the physical end-item and cost elements by individual WBS element



DoD's Goals & Requirements for Industry



- **Each JLTV contractor should know how to:**
 - Effectively plan for CSDR requirements
 - Effectively manage all CSDR requirements
 - Effectively deliver **mathematically accurate data** consistent with Contract CSDR Plan and DID, and derived from cost account data
 - CSDRs are presently checked for mathematical accuracy by the DCARC
 - Defense Cost and Resource Center reviews cost reports, CWBS dictionaries and software reports
 - PM Office also reviews and provides feedback to DCARC.
 - If a CSDR deliverable is rejected, the firm is required to resubmit in a timely manner
 - In Accordance With (IAW) DFAR 215.403-5, the contractor will provide proposal cost estimates on the DD Forms 1921, 1921-1 using the OSD approved contract CWBS plan provided in the RFP



DoD's Goals & Requirements for Industry



- After contract award the contractors shall:
 - At the Start of Work meeting, provide the JLTV-PMO with the methodology for mapping internal cost accounts to the CSDR reporting elements including:
 - Individual WBS elements
 - Recurring vs. Non-Recurring for each element
 - Functional area break-out for any 1921-1 requirements
 - Provide the completed Contract WBS and dictionary IAW DI-MGMT-81334 within 60 days after contract award.
 - Maintain and update the WBS and dictionary during contract execution as required by the CWIPT or as the contractor sees fit so long as the contractor consults the JLTV-PMO and receives consent prior to making the changes. Official submittals will be no more frequent than CCDR reports.
 - Prepare and provide CCDRs IAW DI-FNCL-81565B (“Cost Data Summary Report” DD Form 1921), DI-FNCL- 81566B (“Functional Cost-Hour Report” DD Form 1921-1), DIFNCL- 81567B (“Progress Curve Report” DD Form 1921-2) and DI-FNCL-81765A (Contractor Business Data Report DD Form 1921-3) with the approved Contract CSDR Plan.



DoD's Goals & Requirements for Industry



- Flow down CCDR requirements to any lower tier contractor that will have a contract valued at over \$50 million or any contracts valued at between \$20 million and \$50 million that are designated by the DoD program office as being high risk, high value, or high technical interest.
- In the case when CCDRs are not explicitly required, this is not to be interpreted as excusing the prime contractor from any and all responsibility to provide the JLTV-PMO with some indication of sub-vendors' costs if they could be segregated into Recurring – Non Recurring or disparate WBS elements.
- The contractor shall understand that the responsibility is theirs to provide an accurate and acceptable submission.
- In any case when a submission is rejected by either the DCARC or JLTV-PMO it is the contractor's responsibility to work openly with the JLTV-PMO to remedy the submission.



Resources for additional help w/CSDRs

- **The DCARC website (<http://dcarc.pae.osd.mil>) provides access to:**
 - Data Item Descriptions for Cost & Software Reports
 - April 2007 CSDR Manual (DoD 5000.04-M-1)
 - Military Handbook 881A (MIL-HDBK-881A)
 - Official CSDR Classroom Training Materials
 - CSDR Process Tutorials
 - CSDR Focus Group archives
 - Application for CSDR uploading (used by industry to submit data)
 - CSDR Newsletter
 - Information on how to access to DCARC's collaborative on-line e-room (used by CWIPT members to manage all CSDR required planning documentation)
 - Insight into DCARC's Earned Value Management (EVM) Central Repository
 - Scholarly Publications
 - *"Use of CSDR Data for Developing Credible Cost Estimates", by Jeff Cherwonik, Technomics, Inc.*



EVM Expectations



- **DCARC will provide an approved WBS that must be used**
 - Individual contractors will need DCARC approval of their contract WBS that they propose to use for their CPR and the CSDR
- **Contractors shall utilize Cobra and Open Plan software for their cost and scheduling tools**
- **Resource loaded, electronically integrated cost and schedule system will be required**
 - Must be able to trace all EV schedule variances from Cobra work packages to the Open Plan activity(s) creating the schedule variance



EVM Expectations



- **EV Performance Measurement Baseline (PMB) and schedule baseline will be submitted with the proposal**
 - The PMB must be detail planned for at least six months and correspond to details in the schedule
 - Beyond six months, contractor can utilize planning packages, but must still have a detailed schedule for accomplishing the work for the remainder of the contract
 - Proposal PMB should not include MR
 - Once submitted, the proposal PMB will be under change control if the contractor is awarded the contract
 - Following contract award, BCRs will be processed to identify adjustments to the PMB for negotiated contract changes, MR creation, and any other changes to the PMB that will be submitted to JLTV
 - This provides the required traceability from the cost proposal to the approved cost and schedule baselines



EVM Expectations

- **All Cost and Schedule CDRL submittals will be jointly submitted to the DCARC EV Repository and to ACE**
 - Weekly Schedule submittals to ACE
 - Draft Cobra and Open Plan backups, with status and actuals, to ACE 5 days following close of second accounting period to ensure file compatibility between contractor and JLTV systems
 - Monthly CPR submittals to ACE and DCARC 11 working days following close of the second, and all subsequent, accounting periods
 - Includes wInsight XML and WSA file
 - Winsight backups will include all Cobra data, including time phased future periods, hours, and dollars
 - Includes Cobra backup files
 - Includes PDF files to ensure imports match contractor data
 - Includes Open Plan backup
 - Quarterly IMS and CFSR submittals to ACE and DCARC



EVM Expectations

- **IBR will follow approximately 2 weeks after submittal of the first CPR**
- **JLTV will utilize the XPV (Cross Product Validation) tool to compare Open Plan and Cobra**
 - Contractor will be notified of any discrepancies and be expected to fix them prior to the IBR and document the fix in a BCR
 - Comparison of Open Plan and Cobra data will include:
 - Resource Comparison
 - Forecast Cost Comparison
 - Actual Date Comparison
 - Baseline Date Comparison
 - Forecast Date Comparison
 - Physical Percent Complete Comparison
 - Fiscal Calendar Comparison
 - Work Package Comparison
 - Total Budget Hours Comparison
 - Time Phased Budget Hours Comparison
 - Time Phase Direct Dollars Comparison



EVM Expectations



- **Battle Rhythm will include:**
 - Monthly VIS review of draft CPR, to include Format 5 variance discussion, at least 2 business days before CPR formal submittal
 - Quarterly VIS review of IMS and CFSR at least 2 business days prior to their formal submittal
 - At a minimum, VIS reviews shall include contractor's Business Manager, Project Controls Manager, CAMs, and if there are any significant points of discussion, the contractor's Project Manager
- **Format 5 Narrative explanations must include:**
 - Level 1 executive summary of the current, cumulative, and at complete cost and schedule variances. This shall be a one page summary, not a reiteration of the control account level information
 - Top 5 current, cumulative, and at complete cost and schedule variances. This equates to 25 variance explanations.



EVM Expectations

- **A Log will be maintained for all corrective actions identified in the variance analysis**
 - All open Log items will be reviewed at the monthly pre-CPR review for current status, impact, and path forward
 - The Log will identify the period the corrective action was initiated, the previous period's status, and the current period's status
 - Any corrective action that extends over two periods beyond the identified closure will require a written explanation to be included in the Format 5, that includes the history of the corrective action and an explanation of how future corrective actions will be more closely planned to ensure the forecast action will be completed on time



EVM Expectations



- **Contractors need to be aware of the resource requirements (people) they will need to support these cost and schedule requirements when they are developing their cost proposal**
- **Since the IBR is planned for approximately 75 days following the contract Start of Work (SOW), a DCMA validated EVM System shall be in place prior to award**
 - As part of the source selection, CPARs data and DCMA CARs can be reviewed to determine the status of the contractor's EVM System



EVM Expectations



- **JLTV expects that EVM will be an integral part of the contractor's project management philosophy, not just something submitted to meet contract requirements**
- **All contractor's management personnel (including CAMs) will be expected to be knowledgeable of the scope, schedule, and budget under their area of responsibility**
 - Senior management will be interviewed during the IBRs to ascertain their level of knowledge of EV, the PMB, and the schedule
- **Training for all CAMs and senior management must be completed prior to the IBR**
 - Training should include EV training
 - CAM Roles and Responsibilities
 - The IBR read-ahead package should identify the training curriculum and when the CAMs and management took the training



EVM Expectations



Contract Funds Status Reports

- The Data Item Description (DID) DI-MGMT-81468 provides the directions for completing the Contract Funds Status Report (CFSR)
- The CFSR, using DD Form 1586, is designed to supply funding data about defense contracts to Program Managers for:
 - (a) updating and forecasting contract funds requirements
 - (b) planning and decision making on funding changes in contracts
 - (c) developing funds requirements and budget estimates in support of approved programs
 - (d) determining funds in excess of contract needs and available for deobligation
 - (e) obtaining rough estimates of termination costs
- Quarterly CFSR submittals to ACE and DCARC 11 working days following close of the accounting period for Mar, Jun, Sep, and Dec
- Quarterly VIS review of CFSR at least 2 business days prior to formal submittal



EVM Expectations



- **Obligations and Expenditures**

- Maintaining the identified burn rate is critical for maintaining identified funds
- Earliest funds should be expended first on each CLIN(ie. FY2012 funds prior to FY2013 funds).
- Business Management will be performing a monthly review of ACWP vs. Expenditures.
 - Contractor invoicing and government expenditures should not lag more than approximately 45 days behind the ACWP identified in the monthly CPR
 - Contractor shall provide monthly breakdown of Estimated Actuals or Accruals that are included in the ACWP value
 - Estimated Actuals generally can not be invoiced to the government and are an acceptable justification for being over 45 days behind ACWP values



Integrated Master Schedule Expectations



- **An initial Program Management Baseline (PMB) is to be provided as part of the proposal**
 - The PMB must include a detailed schedule for the first six (6) months of the program
- **Use of Open Plan Professional (OPP) is required**
- **Full compliance with Data Item Description (DID)-81650 for Integrated Master Scheduling (IMS) is required**
 - The IMS requirements for the Product Manager Joint Light Tactical Vehicles (PM JLTV) Program will be authored in accordance with this document
- **Adherence to the Defense Contracting Management Agency's (DCMA) Schedule Assessment Guidelines is expected**
 - Independent Schedule Health Metrics assessments based on these guidelines will be conducted by PM JLTV's IMS Team
- **All contractual data requirements outlined in the IMS Contract Data List Requirements (CDRL) must be satisfied for subsequent IMS submittals**
 - The CDRL will further refine the IMS requirements by providing explicit guidance pertaining to the content, format, frequency and parameters of IMS data fields and supporting analyses



IMS CDRL Delivery Overview

- **Weekly IMS Submittals**

- Data must be submitted in .csv file format via the Advanced Collaborative Environment (ACE)
 - Includes latest performance - actual dates, percent complete, expected finish dates, target dates and relationships
- Supporting Analyses must be posted in PowerPoint or Word format via ACE
 - Critical/Near Critical Path Analyses with Narrative of drivers and float value for 1st prototype delivery, next program event and any other program-specified milestones of interest, as required
 - Late Lists with Corrective Action Plans for each late item

- **Monthly IMS Submittals**

- Data must be submitted in .csv file format via ACE
 - Includes all updated PMB data
- Supporting Analyses must be posted in PowerPoint or Word format via ACE
 - Critical/Near Critical Path Analyses with narrative of drivers and float value for 1st prototype delivery, next program event and any other program-specified milestones of interest, as required
 - Late Lists with Corrective Action Plans for each late item
 - Schedule Risk Analysis with narrative interpretation of results
- The weekly submittal corresponding with the month-end date satisfies this requirement

- **Quarterly IMS Submittals**

- The last month-end submittal and analyses for each quarter should also be posted to the Defense Cost and Resource Center (DCARC) Repository



Cost Report Summary

- **Contractor Average Unit Manufacturing Cost and CSDRs will provide the Government with data to estimate future costs for the JLTV program.**
- **CSDRs and Earned Value Reporting (CPR, CFSR & IMS) are reported to the OSD level, DCARC Office.**
 - DCARC provides ratings based on reporting compliance, on time submittals, etc.



JLTV

EMD Purchase Description

Brett Johnson / Scott Rideout



TD Phase Industry Prototypes



EMD Purchase Description (PD) Development



- PD will continue to evolve with several incremental releases between now and RFP (approx. June 2011) based on
 - Lessons learned from TD phase
 - Removal of unachievable requirements
 - TD phase trades
 - Testing results based on current performance objectives
- PD will not use individual tiering; all requirements shall be satisfied
- Draft PD currently available on the JLTV website at:
http://contracting.tacom.army.mil/majorsys/jltv_emd/jltv_emd.htm
 - Questions / comments will be addressed through web site



Explanation of PD Changes

• Discussion of Running Changes already implemented from TD Phase

- 1136 – Spare Tire as a Kit
- 6576 – IP rating for electrical harness water protection
- 1905 – “electronically” configurable ADUs
- 2043 – Diagnostics to isolate to LRU/LRM “and wiring”
- 2627 – added specifics on 704 “clean” power required
- 2616 – increased to 30A for outlet power
- 3126 – FOV design life lowered to 20 years
- 3576 – clarified the HazMat requirement – EMD will be different
- 912 – lessened the -60F storage requirement to -50F
- 985 – Top speed will become an FOV requirement at 70 MPH
- 987 – top reverse speed adjusted to predicted performance
- 3921 – 40% slope – both vehicle and trailer brakes can be used



Explanation of PD Changes

- **Discussion of Running Changes already implemented from TD Phase**
 - 1045 – excluded audible means of break wear indication
 - 1275 – exception added for “no fan” on fording engine restart
 - 3420 – CWS has been deleted for cost, complexity, weight
 - 3429 – ESC – added “modified performance parameters” to FMVSS 126
 - 6821 – RDS has been deleted for cost, complexity, weight
 - 6827 – defined “half the rated CC speed” for hole in fuel tank, etc...
 - 1359 – removed back-up battery from AFES system
 - 1620 – removed GPK requirement from shelter carrier
 - 7077 – CH 47 lift capability revised
 - 7477/7478 – added Relative Cone Index(RCI) and sand slope requirements



Probability of Change (POC)

- **Each requirement within the FoV and Annexes has been marked as High, Medium or Low for the web release depending on the likelihood of it being modified before RFP release**
 - **High:** Requirements marked as High (red) have a high probability of being modified for EMD
 - **Medium:** Requirements marked as Medium (orange) might be modified for EMD, but probably won't have a major design impact
 - **Low:** Requirements marked as Low (yellow) are not likely to be changed for EMD, or might change for administrative reasons

ID	POC	JLTV FoV Requirement
PDFOV-XXXX	H	
PDFOV-XXXX	M	
PDFOV-XXXX	L	



PD Changes yet to come



- **High Probability changes**

- 878 - Weight Definition (style) to change
- 3931 - ECC definition to change
- 912 - Trailer storage at -50F is still too harsh
- 942 – exceptions to single ride height for all mobility / FP
- 946 - % Cross country is changing (OMSMP)
- 996 – Tow eye protrusion no longer allowed
- 1009 – redefine Parking on 40% slope with Park Brake(s)
- 1050 – VCI definition to include testing variability (RCI)
- 1060 – change “future payload growth” to GVWR req’t
- 1134 – tread life of 18000 miles to be adjusted
- 1142 – Run Flat qualification definition to be adjusted
- 1264 – Range is likely to be reduced
- 1305/7331 – Tow Bar may change
- 3439 – ESC – still assessing performance and therefore req’t
- 1037 – ESC without ABS function is not reasonable



PD Changes yet to come



• High Probability changes

- 7042 – RH operation is under evaluation for driving unique AUS requirements
- 1323 – Better definition of operators allowed for B-kit application
- 6894 – better definition of when the fuel tank suppression is required
- 1597 – Make clear the GPK vs. gun mount traverse requirements
- 7420 – be more specific about what BII and where it must be
- 1609 – adjust the elev/depression numbers based on test
- 6972 – GPK might be eliminated from JLTV-C
- 1715 – HEMP and INWE probably will be deleted
- 2686 – MIL-STD 464 will be tailored to target system level compliance
- 4049 – may add other exceptions allowed to be removed for transport
- 7306 – debating on allowing Ride Height changes on the move
- 3043 – Air cleaner life lowered to not require a SCAF
- 6920 – Some FMVSS not applicable – will modify for 4 or 5 point sys
- 3183 – pre-tensioning for rollover will likely be deleted
- 3134 – MIL-STD 1472 will be tailored to call out specific paragraphs



PD Changes yet to come



- **High Probability changes**

- 6570 – allowance for defrosting B-kit glass will likely be made
- 6989 – still working on how to require re-circ air (100%...)
- 928 – AC cooling requirement may be lessened based on test results
- 6991 – likely to remove additional seating requirement
- 6548 – stowage definition will be clarified – the 4 cu ft may increase
- 3287 – may give relief on 5th percentile opening door on slope
- 3289 – likely to delete egress while upside down with doors pinned shut
- 940 – developing better definition of 360 degree vision
- 6574 – CARC stays, colors will change
- 6993 – MHE crane will likely be deleted
- 1309 – adjustable pintle will likely be deleted – favor adjustable lunette



JLTV EMD Phase Statement of Work



Initial Draft SOW to be published 3rd quarter of FY2010

- Approximate quarterly draft releases between now and RFP release
- Releases may be influenced by current testing results and TD contractor performance
- Similar to TD phase but with additional level of details

SOW Considerations and Drivers

- Lessons learned from TD phase
- PDR and CDR reviews will be held
- Systems Engineering Plan (SEP) will be released with RFP
- Systems Engineering Management Plan (SEMP) to be delivered
- Additional scope to be added – technical data strategy, log products, etc.
- Scope outline for EMD demonstrator vehicles (not in initial draft scope publication)
- International section to be added for bidder comprehension
- Specific testing accomplishments to realize a higher percentage of performance, FP, RAM, than in TD phase,
- GFE will include a higher level of detail – Annex K changes, NSNs, software versions
- Production Readiness Planning, Producibility, MRLs.....

JLTV EMD Phase Statement of Work



- C.1 General
- C.2 Program Structure and Management
- C.3 Cost/Schedule Control
- C.4 Risk Management
- C.5 Meetings/Conferences/Reviews**
- C.6 Engineering and Manufacturing Development (EMD) Planning Documents**
- C.7 Systems Engineering Plan
- C.8 Hardware Requirements
- C.9 Software
- C.10 Interoperability Requirements
- C.11 Configuration Management
- C.12 Lifecycle Product Data Management**
- C.13 Command, Control, Communications, Computers, Intelligence, Surveillance, & Reconnaissance (C4ISR/EW)**
- C.14 Technology and Growth Plan**
- C.15 Modeling and Simulation
- C.16 Safety
- C.17 Environmental Compliance
- C.18 Human Systems Integration (HSI)/MANPRINT
- C.19 Supportability/Integrated Logistics Support (ILS)**
- C.20 Reliability, Availability, Maintainability (RAM) Program
- C.21 Government Furnished Equipment (GFE) and Information (GFI) Integration and Installation
- C.22 Final Scientific and Technical Report
- C.23 Production Readiness Planning**
- C.24 International**

Key

Blue: Significant Growth in SOW

Red: Wholesale change for EMD



JLTV C4I

Chris Brouwer / Chuck Trude



TD Phase Industry Prototypes

Background

Pre-TD Phase

- PEO CS&CSS, PEO C3T, and TARDEC formed an IPT to develop a requirements set for a vehicle based digital architecture that would allow for better integration of C4ISR/EW systems.

TD Phase

- JLTV TD phase C4I architectures are a successful proof of concept providing necessary input to the achievability of the C4I architecture requirements.
- JLTV TD phase demonstrated that a one size fits all architecture strategy, while good for commonality and logistics, is cost prohibitive for a large fleet of vehicles.
- Affordability and matching user needs with provided capability needs to be paramount in the overall design.



JLTV Alignment with other C4I Activities

- **The JLTV program is aligned with other vehicle C4I architecture activities (i.e. MRAP Digital Backbone and PEO C3T VICTORY)**
 - Open standards i.e. GigE, J1939, etc.
 - Smart Displays with complete C4I & Vetric display and control
 - Software Cross Domain Solutions (Access and Transfer)
 - Onboard vehicle computing system(s)
 - Smart power distribution control and display
 - Hard drive Type 1 Data at Rest (SATA Encryption Module)
- **The JLTV program is aligned with foreseeable future C4ISR/EW Systems**
 - JTRS
 - WIN-T
 - JBC-P
 - Mounted Soldier System



JLTV NetCentric Vehicle Requirements (Notional)



A-Kit/B-Kit Electronics Approach:

- **A-Kit electronics**
 - Open, modular and scalable
 - Installed on the production line
 - Enable all vehicles B-Kit electronics ready
- **B-Kit electronics**
 - Enable different demands to be placed on the architecture would be installed under a plug-and-play concept as availability, mission and funding dictates.
- **The correct mix of commercial standards (e.g. SAE and IEEE), promoting open architectures, will facilitate this approach**

A-Kit Electronics Include the Following:

- Vehicle Computing Resources
- Vehicle Controls and Displays
- Automotive Sensor Data Bus
- C4ISR/EW Data Bus(es)
- GPS
- Power Management System and cabling
- Mounting hardware for B-Kit electronics

EMD Phase solutions must utilize highly mature, risk adverse technologies to meet requirements while controlling per unit costs.



Vehicle Computing Resources

(Notional)



- **The Vehicle Computing Resources shall be scalable and consist of:**
 - Smart Displays with on-board processing
 - 8" - 15.4" color LCD with touch screen and bezel buttons
 - Intel Core processor supporting virtualized Operating Systems (Windows and Linux)
 - Internal solid state hard drive
 - Data at rest (DAR) solution
 - Application hosting (i.e. Diagnostics, Battle Command, Radio control, etc.)
 - Dumb Displays driven by a vehicle computing system.
 - 13" - 15.4" color LCD with touch screen and bezel buttons
 - Modular chassis configuration supporting multiple Intel Core processors and virtualized Operating Systems (Windows and Linux)
 - Internal solid state hard drives
 - Data at rest (DAR) solution
 - Application hosting (i.e. Diagnostics, Battle Command, Radio control, etc.)



Display and Control Subsystem (Notional)



- **The Display and Control Subsystem shall consist of appropriate displays required to perform the mission of the sub-configuration. Displays will be added as kits and shall include:**
 - Driver's Embedded Smart Display
 - Vetronics
 - Power Management
 - Diagnostics
 - Commander's Display
 - Battle Command & Control
 - Radio Control
 - Electronic Warfare (EW) Control
 - Video feeds from SA cameras and GFE systems (i.e. DVE, CROWS, etc.)
 - Any number of Auxiliary Displays
 - As required to enable the crew to perform its mission



Data Bus Architecture Requirements

(Notional)



- **The JLTV Data Bus architecture shall include a C4ISR/EW Data Bus and a Vehicle Sensor Data Bus.**
 - C4ISR/EW
 - The C4ISR/EW Data Bus Architecture shall enable data exchange between Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance / Electronic Warfare (C4ISR/EW) systems and other bussed systems on the Family of Joint Light Tactical Vehicles (JLTV) in accordance with ICDs provided as GFI and the requirements identified in the Information Assurance section of this document.
 - Vehicle Sensor Data Bus
 - The Vehicle Sensor Data Bus shall enable and facilitate the exchange and update of vehicle diagnostics data.



Information Assurance

(Notional)



- The JLTV shall be certified and accredited in accordance with DIACAP implementing the corresponding IA controls.
- Cross Domain Solutions (both Access and Transfer) shall be added as a kit(s) and shall complete a favorable Certification Test and evaluation conducted by the NSA or trusted agent designated by the NSA.
- If a Firewall, IDS or other IA product is developed for JLTV, then it shall meet NIST requirements and be assessed under the National Information Assurance Partnership (NIAP) Common Criteria evaluation and Validation Scheme (CCEVS) for approval.

- **C4ISR/EW component integration shall be consistent with the A-Kit/B-Kit electronics approach and plug-and-play concept.**
- **Hardware integration shall be:**
 - Powered via the Vehicle Power Management/Distribution System
and
 - Remote viewable and controllable via the Vehicle Controls & Displays
- **Software integration shall be:**
 - Hosted on Vehicle Computing Resources
- **Antennas**
 - Contractors shall examine the co-site interferences involved in the placement of all antennas
 - Contractors shall consider the inclusion of multi-band antennas



Diagnostics

(Notional)



- **The JLTV shall have the on-board ability to query digital and analog subsystems, modules, and components in support of embedded diagnostics.**
- **Contractors are encouraged to take advantage of manufacturer provided diagnostic codes and reduce the number and cost of specialized diagnostic instrumentation.**
- **The On-Board Diagnostics Capability shall be:**
 - Hosted on Vehicle Computing Resources
and
 - Remote viewable and controllable via the Vehicle Controls & Displays
- **The JLTV shall provide an interface for legacy at-platform diagnostic systems (i.e. MSD & VADS)**



Power Management and Distribution

(Notional)



- **On-Board Power Generation**

- The JLTV shall be capable of providing sustained on-board electrical power in addition to vehicle hotel loads.
- On-Board Power shall be provided with engine at tactical idle (T); normal idle (O) and while the vehicle is moving (T).

- **Export Power Generation**

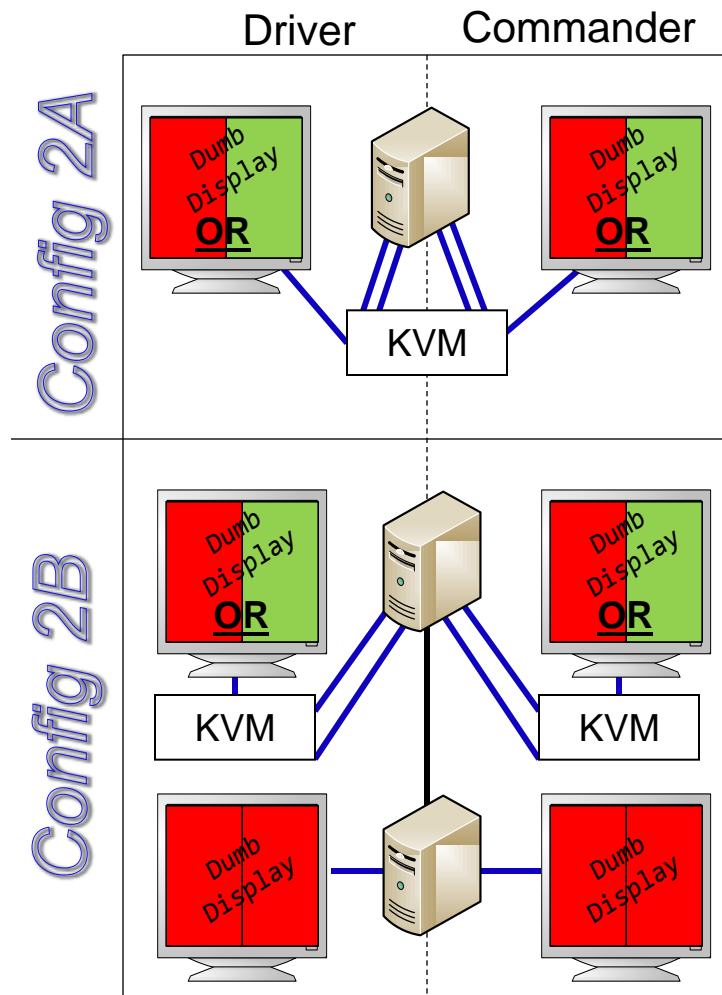
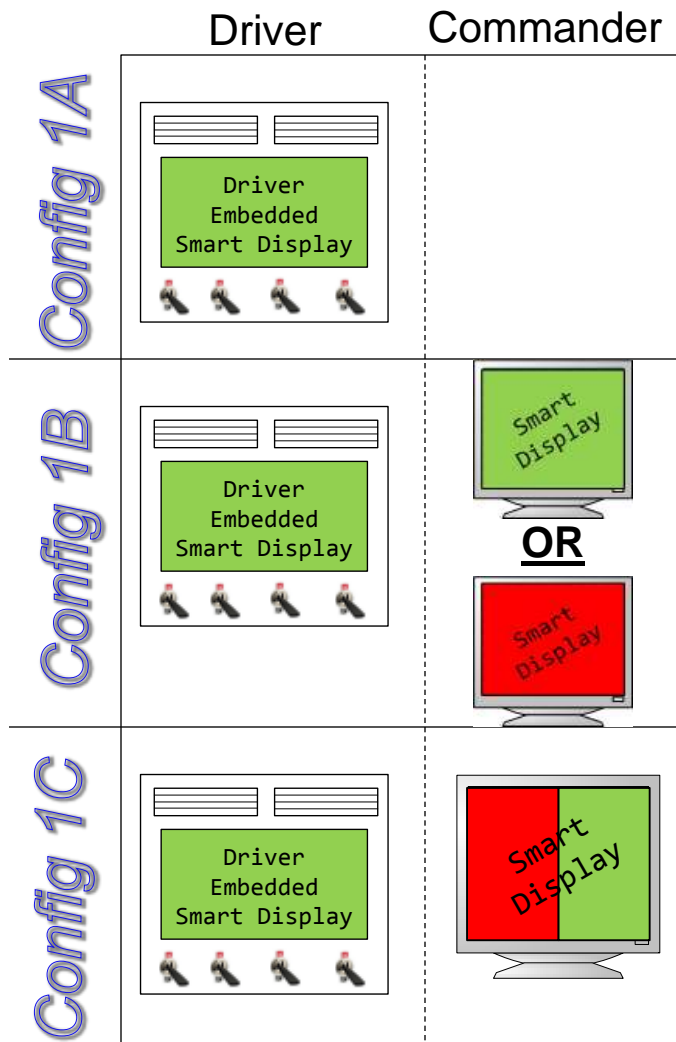
- The JLTV shall be capable of providing sustained exportable electrical power simultaneously with the on board power generation requirements.
- Export Power Generation can be provided as a vehicle add on kit.

- **Silent Watch**

- The JLTV, with the engine off and without the use of an auxiliary power unit, shall have the capability of supplying continuous, rechargeable electrical power for silent watch for two (2) hours (T) six (6) hours (O).
- Silent Watch power can be provided as a vehicle add on kit.

The amount of On-Board and Export Power required is currently being investigated and will be included in subsequent releases of the draft PD.

Notional Display & Processing Configurations (Notional)



Conclusion

(Notional)

- **TD phase C4I architectures are a successful proof of concept:**
 - Providing necessary input to the achievability of the C4I architecture requirements
 - Inline with commonization efforts and the ability to adapt to future growth
- **EMD phase C4I architecture solution:**
 - Solutions must utilize highly mature, risk adverse technologies to meet requirements while controlling per unit costs.
 - Implement truly scalable families of capabilities that build upon each other in order to match needed capabilities to the delivered solution

Lessons learned are being used to update C4I requirements and will continue as TD phase testing is completed. Updated requirements will be provided in subsequent releases of the draft PD.



JLTV Science & Technology

TARDEC
Magid Athnasios / Gary Schultz



TD Phase Industry Prototypes


RDECOM


Engineering Business Group (EBG) Systems in Acquisition

Mission:

Provide joint service customers engineering and quality subject matter experts to develop, procure and sustain tactical vehicles that meet or exceed required performance, reliability and survivability.

Vision:

Providing the joint war fighter with the best tactical vehicle that meets or exceeds program goals for cost, schedule and performance.



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.



Briefing Agenda



Survivability ATO

JLTV Ambulance Module

What's ahead

TWVS ATO Overview

PURPOSE: To Provide Vehicle and Crew Survivability Enhancements Across the Tactical Wheeled Vehicle Fleet Through:

- Integrated Armor Solutions
 - Non-Armor Technologies
 - Modeling and Simulation Tools

Address both current needs emerging from theater and future threats to 2017



Integrated Survivability Demonstrator

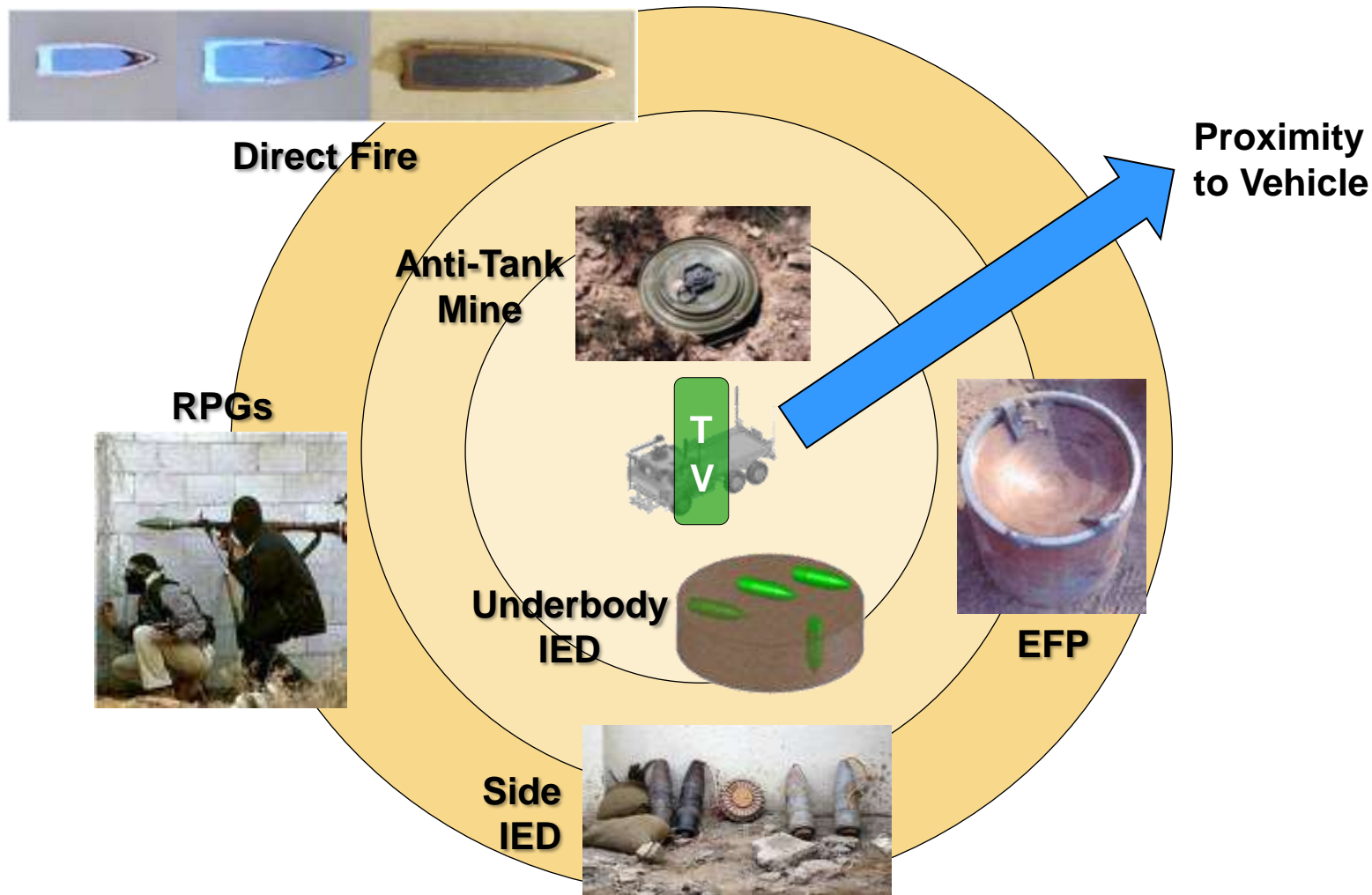


Survivability System Deskbook

ENDSTATE:

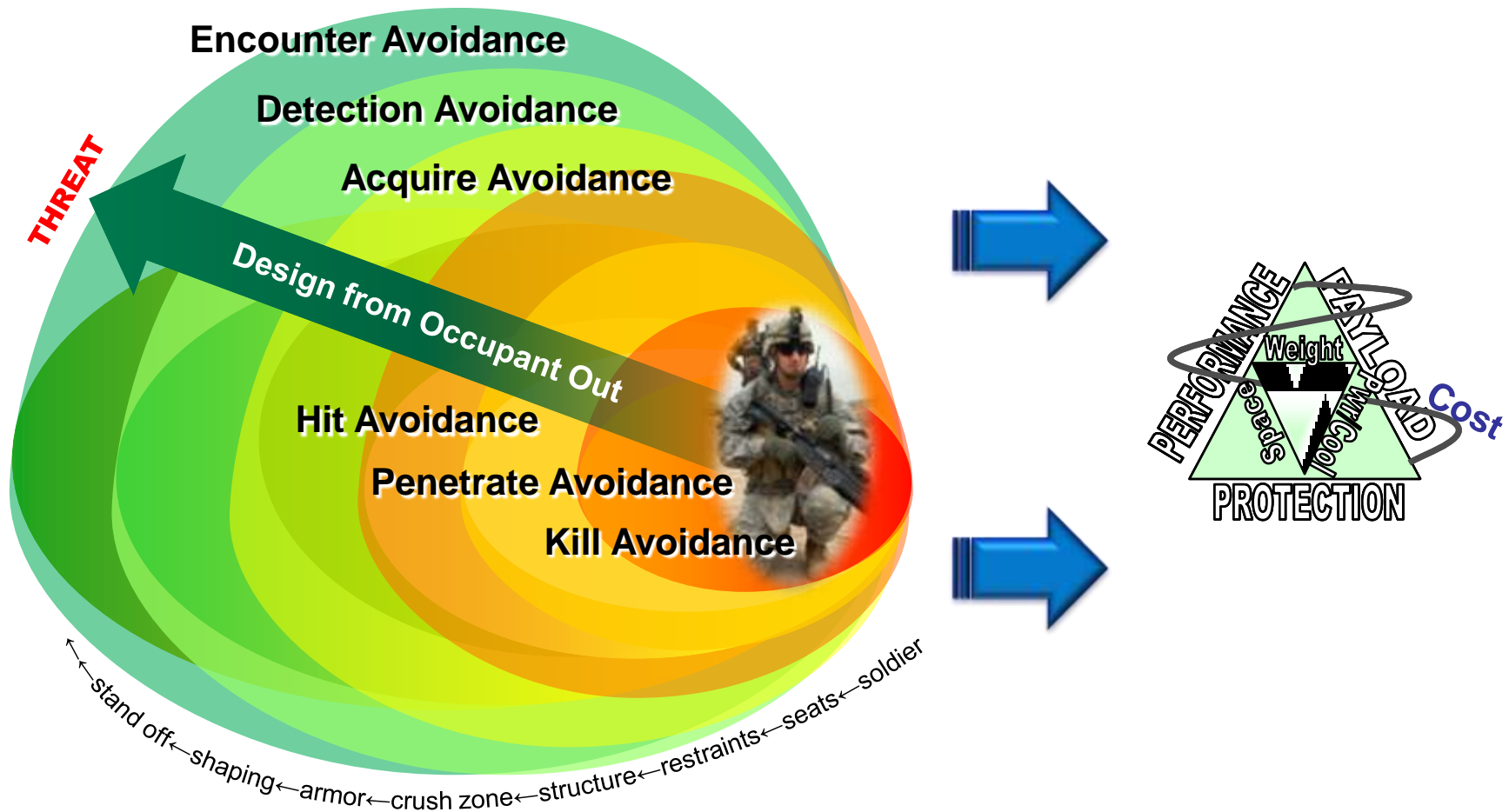
Provide Optimized Survivability Suites for Tactical Wheeled Vehicles Catalogued by Platform in the Survivability System Deskbook, balancing payload, protection, and performance, while addressing cost.

Tactical Vehicle Threats



Providing the ability to change based on mission, threat, and technology

TWVS ATO Integrated Survivability Approach



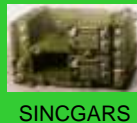
TWV Survivability ATO is taking a Comprehensive look at Survivability

Reconfigurable Survivability Integration

Situational Awareness



C4ISR



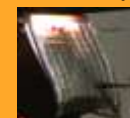
Signature Management & Electronic Countermeasures



Non-Lethal



Active Protection System & Counter Sniper



Data Power Physical

Crew Protection

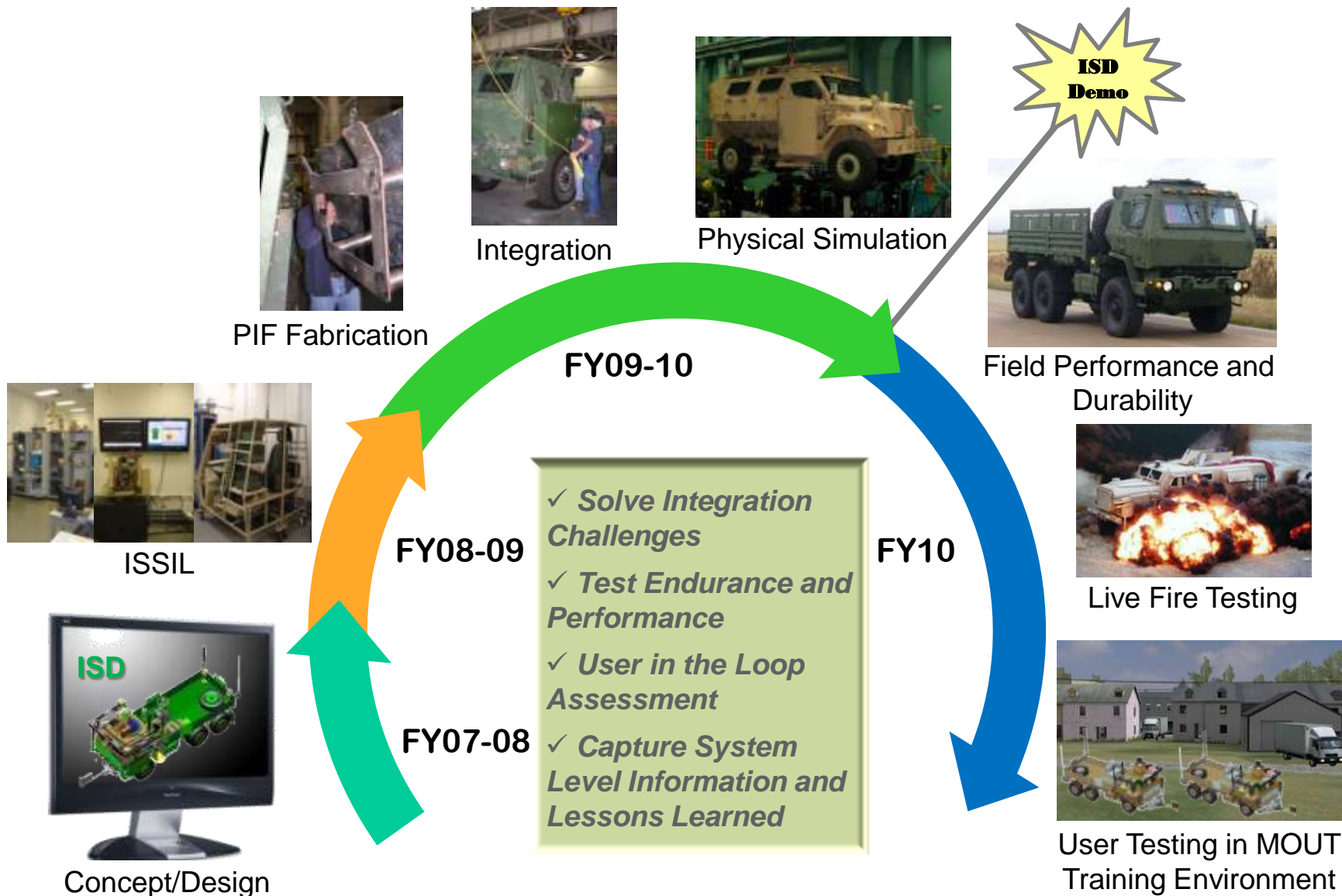


Armor Protection



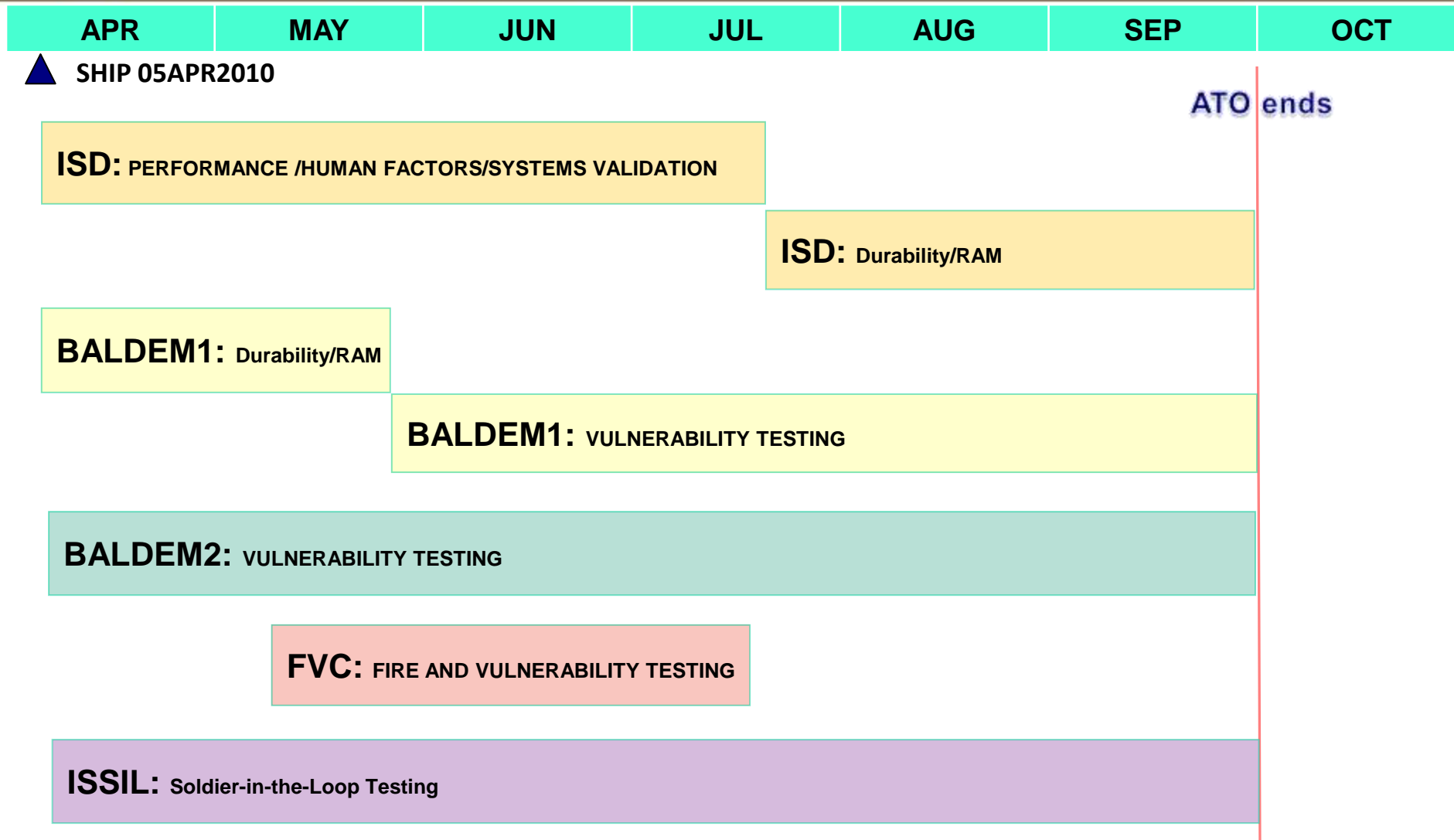
*Providing the ability to change based on mission, threat, and technology
Mission tailorability achieved through Plug & Play*

Systems Engineering Process





What's Next: Testing at ATC



So What?

- Validation of M&S tools thru testing
- TRL 6 matured armors
- 2nd VICTORY architecture implementation expanded to 50 survivability technologies
- Evaluation of common displays and their impact on soldiers
- Centralized vehicle power control for all sub-systems
- Integrated RPG defeat and counter-sniper system thru a common radar

Ambulance Shelter Center of Excellence

Through a close working relationship with the AMEDD community and the vehicle integrators TARDEC has developed a center of knowledge for the design and integration of an ambulance shelter.



Group will provide a focal point for all ambulance related integration work on military vehicle platforms.

Technologies include advanced materials, system architecture, advanced medical equipment, medical requirements tracking and integration burdens to host platform.



Summary of S&T



- **Fall of CY 10 and every year after:**

- Watch for Industry conferences where the government shares the work being done to support all platforms and lessons learned from the most recently fielded systems

- **Through the program management office:**

- The S&T community will keep the PMO apprised of all relevant technologies that may have applicability to JLTV
- The S&T community will work with the PMO to adjust relevant programs to meet contractor decision points
- Assist the PMO leveraging all M&S Capabilities
 - Requirements Capture, Concept Development, Program Formulation
 - Dynamic/Structural Performance, Mathematical Modeling, Data Analysis
 - Physical Validation, Systems-Level Validation
 - High Power Computing, Product & Program Data Management
 - Integrated System-Level Demonstrators



JLTV

Test & Evaluation Product Assurance

John Wozniak / Erin Thompson



TD Phase Industry Prototypes

EMD Test Strategy

(Notional)

- **Pre Award: Demonstrator Testing**

- Test to support Source Selection process
- Short duration event, 60 days from receipt of sample to test report completion
- Review of vendor supplied coupons, ballistic hulls and prototype data
- Focus of testing will be upon KPPs/KSAs and major supporting requirements identified later, which can be evaluated in allowed timeframe
- Vendor maintenance and supply support for duration of event
- Data will be used in subsequent DT testing if relevant

- **Post Award : Two vendors providing vehicles, representing three payload categories and ten vehicle sub-configurations and trailers**

- All sub-configurations will be performance tested
- All sub-configurations will be operationally tested during EMD
- All base vehicles ballistic tested
- Base vehicles (each payload category) will undergo reliability growth testing
- Base vehicles will be evaluated for transportability, mobility and maintainability



EMD Developmental Testing

(Notional)



- **Events**

- Ballistic Testing:

- EMD strategy consistent with TD phase
 - DOT&E Oversight
 - Vendors should leverage previous government testing whenever possible and practical

Coupons → Hulls → Prototypes

- Performance Testing

- Full range of Automotive testing for each payload category
 - Include evaluation of Net centricity as well as C4ISR integration
 - Transportability Demos: Helo, C130, Gray bottom, MPS
 - Reliability (RAM) Testing:
 - » EMD primary phase for R&M growth
 - » 25k miles for 125k total on each Payload Category
 - » 80% confidence
 - » Included C4ISR and GFE evaluation (integration only)

- **Potential Locations**

- Aberdeen Test Center (ATC)
 - Yuma Test Center (YTC)
 - Australia
 - Cold Regions Test Center (CRTC)
 - Engineer Research and Development Center (ERDC)
 - Blount Island Command (BIC)



EMD Operational Testing

(Notional)



- **Event**

- Limited User Test (LUT), an operational test event will be conducted during EMD

- **Personnel**

- Goal is for joint effort, if not, two separate individual events for both USMC and US Army

- **Location**

- TBD, will be not be DT site

- **Vehicles**

- Will use DT performance vehicles and Log demo vehicles

- **Schedule**

- Tentative 60 day event to begin upon completion of performance testing

- **Output:** Assessment of operational suitability and mission effectiveness



EMD Test Assumptions/Challenges

(Notional)



- Twelve months scheduled for EMD Phase testing – very tight schedule given variety of tests and potential number of locations for testing
- High priority vehicles assume virtually identical configuration to base vehicles with exception of kits/internal racks
- Transportability Requirements further increase vehicle movements during testing
 - Sealift, Airlift, LVAD Helicopter Lift, etc
- Performance and Reliability Testing must be completed before LUT, little time for test/fix/test
- Testing lessons learned from TD limited to processes as EMD Prototypes may not be the same as TD phase vehicles
- Scope of EMD Testing may be adjusted based on demonstration/initial performance testing and commonality

EMD Prototype Numbers

(Notional)



Vehicles Procured and Tested During EMD								
Payload Catagories and Sub-Configurations	Performance/ Safety	RAM	Ballistic Prototypes	Ballistic Cabs	Trailers	Log Demo**	LUT*	Total Test Vehicles
EMD Base Vehicles								
Payload Category A (3500 lbs) GP	2	5	1	0	10	2	3	10
Payload Category B (4000/4500 lbs) IC Fire Team, 6 seat	2	5	1	1	8	2	3	10
Payload Category C (5100 lbs) Shelter	2	5	1	1	6	2	3	10
High Priority Vehicles								
Payload Category A (3500 lbs) HGC	1						1	2
Payload Category A (3500 lbs) CCWC/TOW	1						1	2
Payload Category C (5100 lbs) Ambulance (3 Seats + 2 litters)	1						1	2
EMD CDR Design Only (Build and Test after Initial MS C) the balance of the Family of Vehicles (tentative)								
Payload Category A (3500 lbs) Armored Scout LRAS								
Payload Category A (3500 lbs) C2OTM (Brigade)								
Payload Category B (4000/4500 lbs) C2OTM (Brigade and Above)								
Payload Category B (4000/4500 lbs) 6 seat Recon (Scout, COLT, FIST)								
Payload Category C (5100 lbs) Ambulance (3 Seats + 4 litters)								

* LUT requirement is added to the Performance/Safety/Log Demo (1 veh) for total number of vehicle needed for LUT

**Same vehicles as used for Performance test

Quantities and configurations are under review and may have significant adjustments



EMD Phase Quality Assurance



- **EMD quality assurance shall be compliant with ISO 9000**
- **Contractor quality management system will be evaluated and approved by the government**
- **Periodic audits will be scheduled and conducted**
- **Section E of the scope of work will grow significantly commensurate with the EMD program requirements**



JLTV

Closing Remarks



TD Phase Industry Prototypes